Analytical and Quality Control Report

William Little WTS P.O. Box 363 Building 126 3RD Floor WSMR, NM, 88002

Report Date: January 9, 2007

Work Order: 6121324

Project Name:

HELSTF Groundwater Samples

Project Number: 7

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

			Date	Time	Date
Sample	Description	Matrix	Taken	Taken	Received
111621	HLSF-0085-HMW-123-1206	water	2006-12-11	10:12	2006-12-12
111622	HLSF-0085-TB-787-1206	water	2006-12-11	10:12	2006-12-12

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

This report consists of a total of 56 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael Abul Dr. Blair Leftwich, Director

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Work Order: 6121324 **HELSTF** Groundwater Samples Page Number: 2 of 56

Analytical Report

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis:

Ag, Dissolved

OC Batch: Prep Batch: 28613

32994

Analytical Method:

Date Analyzed:

S 6010B 2006-12-20

Sample Preparation: 2006-12-18 Prep Method:

S 3005A

Analyzed By: RR Prepared By: TS

RL

Parameter Dissolved Silver

Result Flag < 0.00200

Units mg/L Dilution

RL0.00200

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Prep Batch:

Ag, Total 33098

28574

Analytical Method: Date Analyzed:

S 6010B 2006-12-26

2006-12-15

Prep Method: Analyzed By:

S 3010A RR

Prepared By:

TS

RL

Sample Preparation:

Parameter Total Silver

Result Flag < 0.00200 Units mg/L Dilution

RL

0.00200

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Prep Batch:

Alkalinity

32918

28627

Analytical Method: Date Analyzed:

SM 2320B 2006-12-15 Prep Method: Analyzed By:

Prepared By:

N/A JG

JR

Sample Preparation: 2006-12-15

рr

		1/32			
Parameter	Flag	Result	Units	Dilution	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3]	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1	1.00
Bicarbonate Alkalinity		66.0	mg/L as CaCo3	1	4.00
Total Alkalinity		66.0	mg/L as CaCo3	1	4.00

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis:

Ammonia 33017

Analytical Method: Date Analyzed:

SM 4500-NH3 B,C

Prep Method: N/A Analyzed By: SM

QC Batch: Prep Batch:

28703

Sample Preparation:

2006-12-21 2006-12-21

Prepared By: SM

RL

Parameter	Flag	Result	Units	Dilution	RL
Ammonia-N		<1.00	mg/L	1	1.00

Work Order: 6121324 **HELSTF** Groundwater Samples Page Number: 3 of 56

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: OC Batch: Prep Batch: As, Dissolved

32994 28613 Analytical Method:

Date Analyzed: Sample Preparation:

S 6010B 2006-12-20 2006-12-18

Analyzed By:

Prep Method:

RR Prepared By: TS

RL

Parameter Dissolved Arsenic Flag Result < 0.00500 Units mg/L Dilution

RL0.00500

S 3005A

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Prep Batch:

As, Total 33098 28574

Analytical Method: Date Analyzed:

S 6010B 2006-12-26 2006-12-15

Prep Method: S 3010A

Analyzed By: RR Prepared By: TS

RL

Sample Preparation:

Parameter Total Arsenic Flag

Result < 0.0100 Units mg/L

Dilution

RL

0.0100

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Ba, Dissolved 32994 Prep Batch: 28613

Analytical Method:

S 6010B Date Analyzed: 2006-12-20 Sample Preparation: 2006-12-18

S 3005A Prep Method:

Analyzed By: RR Prepared By: TS

RL

Parameter Dissolved Barium

Result 0.0100 Units mg/L

Dilution

RL 0.0100

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Prep Batch:

Parameter

Total Barium

Ba, Total 33098

28574

Analytical Method: Date Analyzed:

Sample Preparation:

S 6010B 2006-12-26 2006-12-15 Prep Method: S 3010A

Analyzed By: RR Prepared By: TS

Flag

Flag

RL Result 0.0100

Units mg/L

Dilution

RL

0.0100

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Prep Batch:

Bromide (IC)

33182 28842 Analytical Method: Date Analyzed: Sample Preparation:

E 300.0 2006-12-27 2006-12-27

Prep Method: Analyzed By:

Prepared By:

WB WB

N/A

RL

Parameter Flag Result Units Dilution RLBromide <1.00 mg/L 5 0.200

Work Order: 6121324 **HELSTF** Groundwater Samples Page Number: 4 of 56

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: OC Batch: Cd, Dissolved

32994 Prep Batch: 28613 Analytical Method: Date Analyzed:

S 6010B 2006-12-20 Sample Preparation:

2006-12-18

Prep Method: Analyzed By:

S 3005A RR TS

Prepared By:

RL

Parameter Dissolved Cadmium Flag Result < 0.00100 Units mg/L Dilution

RL0.00100

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: OC Batch:

Prep Batch:

Cd, Total 33098 28574

Analytical Method: Date Analyzed:

S 6010B 2006-12-26 Sample Preparation: 2006-12-15 Prep Method: S 3010A

Analyzed By: RR Prepared By: TS

RL

Parameter Total Cadmium

Result < 0.00100

Units mg/L Dilution

RL 0.00100

Sample: 111621 - HLSF-0085-HMW-123-1206

Flag

Analysis: QC Batch: Prep Batch:

Conductivity

32909 28617 Analytical Method: Date Analyzed:

SM 2510B 2006-12-13 2006-12-13 Prep Method: N/A Analyzed By: DR

Prepared By:

RL

Sample Preparation:

Parameter Specific Conductance Result 11000

Units μMHOS/cm Dilution

RL

0.00

JR

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: OC Batch:

Prep Batch:

32994

Cr, Dissolved

28613

Analytical Method: Date Analyzed:

S 6010B 2006-12-20 2006-12-18 Prep Method: S 3005A

Analyzed By: RR Prepared By: TS

RL

Sample Preparation:

Parameter Dissolved Chromium Flag

Flag

Result < 0.00500

Units

mg/L

RL

0.00500

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: OC Batch:

Prep Batch:

Cr, Total 33098

28574

Analytical Method: Date Analyzed:

Sample Preparation:

S 6010B 2006-12-26 2006-12-15

Prep Method: S 3010A Analyzed By: RR

Prepared By:

RL

Parameter Flag Total Chromium

Result < 0.00500

Units mg/L Dilution

Dilution

RL 0.00500

TS

Work Order: 6121324 **HELSTF** Groundwater Samples Page Number: 5 of 56

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

7

Cu. Dissolved

32994 Prep Batch: 28613

Analytical Method: S 6010B Date Analyzed:

2006-12-20

Prep Method: Analyzed By: RR

S 3005A

Sample Preparation: 2006-12-18 Prepared By:

TS

RL

Parameter Dissolved Copper Flag Result < 0.0125

Units mg/L Dilution

RL 0.0125

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Prep Batch:

Cu, Total 33098 28574

Analytical Method: Date Analyzed:

S 6010B 2006-12-26 Prep Method: Analyzed By:

S 3010A RR

Sample Preparation:

2006-12-15

Prepared By:

TS

RL

Parameter Flag Total Copper

Result < 0.00500 Units mg/L Dilution

Dilution

RL

0.00500

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Prep Batch:

Total Mercury

Hg, Total 32862 28579

Analytical Method: Date Analyzed:

S 7470A

2006-12-15 2006-12-14 Prep Method: N/A

Analyzed By: TS

Sample Preparation:

Parameter

RL Result < 0.000200

Units

mg/L

Prepared By:

TS

0.000200

RL

Analysis: QC Batch:

QC Batch:

Sample: 111621 - HLSF-0085-HMW-123-1206

Flag

Ion Chromatography 33006 Prep Batch: 28666

33182 Prep Batch: 28842

Analytical Method: Date Analyzed:

Date Analyzed:

Sample Preparation:

E 300.0 2006-12-15 Sample Preparation: 2006-12-15 2006-12-27

2006-12-27

Prep Method: N/A Analyzed By: WB Prepared By: WB Analyzed By:

Prepared By:

WB WB

RL

Flag Result Units Dilution Parameter RL1430 50 0.500 Chloride mg/L Fluoride 3.85 mg/L 5 0.200 500 0.500 Sulfate 5740 mg/L

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: QC Batch:

Prep Batch:

Na, Dissolved

33035 28613 Analytical Method: Date Analyzed: Sample Preparation: S 6010B 2006-12-21 2006-12-18

S 3005A Prep Method: Analyzed By: RR

Prepared By: TS

7

Work Order: 6121324 Page Number: 6 of 56 **HELSTF Groundwater Samples**

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Dissolved Sodium		1590	mg/L	10	0.500
-					

Sample: 111621 - HLSF-0085-HMW-123-1206

Na, Total Analytical Method: Analysis: QC Batch: 33125 Date Analyzed: Prep Batch: 28574

S 6010B 2006-12-27 Sample Preparation: 2006-12-15 Prep Method: S 3010A Analyzed By: RR Prepared By: TS

RL Parameter Result Units Dilution RLFlag Total Sodium 2070 mg/L 0.500

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: Nitrate and Nitrite as N QC Batch: 33482 Prep Batch: 29087

Analytical Method: E 353.3 Date Analyzed: 2007-01-05 Sample Preparation: 2007-01-05

Prep Method: N/A Analyzed By: JS Prepared By: JS

RLParameter Flag Result Units Dilution RL0.100 Nitrate and Nitrite as N 46.8 mg/L 200

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: NO2 (IC) QC Batch: 33182 Prep Batch: 28842

Analytical Method: E 300.0 Date Analyzed: 2006-12-27 Sample Preparation: 2006-12-27

Prep Method: N/A Analyzed By: WB Prepared By: WB

RLParameter Result Units Dilution RL Flag 0.200 Nitrite-N <1.00 mg/L 5

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: NO3 (IC) OC Batch: 33006 Prep Batch: 28666

Analytical Method: E 300.0 Date Analyzed: 2006-12-15 Sample Preparation: 2006-12-15

Prep Method: N/A Analyzed By: WB Prepared By: WB

RL Parameter Result Units Dilution RL Flag Nitrate-N 63.4 0.200 mg/L 50

Work Order: 6121324 **HELSTF** Groundwater Samples Page Number: 7 of 56

Sample: 111621 - HLSF-0085-HMW-123-1206

P. Total Analysis: 33098 QC Batch: Prep Batch: 28574

Analytical Method: S 6010B Date Analyzed: 2006-12-26 Sample Preparation: 2006-12-15 Prep Method: S 3010A Analyzed By: RR Prepared By: TS

RL

Parameter Flag Result Units Dilution RLTotal Phosphorous < 0.0500 0.0500 mg/L 1

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: Pb, Dissolved 32994 QC Batch: Prep Batch: 28613

Analytical Method: S 6010B Date Analyzed: 2006-12-20 Sample Preparation: 2006-12-18

Prep Method: S 3005A Analyzed By: RR Prepared By: TS

RL

RL

Parameter Result Flag Units Dilution RL Dissolved Lead < 0.00500 mg/L 0.00500

Sample: 111621 - HLSF-0085-HMW-123-1206

Pb, Total Analysis: QC Batch: 33098 Prep Batch: 28574

Analytical Method: S 6010B Date Analyzed: 2006-12-26 Sample Preparation: 2006-12-15

S 3010A Prep Method: Analyzed By: RR Prepared By: TS

Parameter Flag

Result Dilution Units < 0.00500 mg/L

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: рΗ QC Batch: 32903 Prep Batch: 28611

Total Lead

Analytical Method: SM 4500-H+ Date Analyzed: 2006-12-12 Sample Preparation: 2006-12-12

Prep Method: N/A Analyzed By: JG Prepared By: JR

RL

0.00500

RLParameter Result Units Dilution Flag RL7.53 pΗ s.u. 0.00

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: Se, Dissolved QC Batch: 32994 Prep Batch: 28613

Analytical Method: S 6010B Date Analyzed: 2006-12-20 Sample Preparation: 2006-12-18

Prep Method: S 3005A Analyzed By: RR Prepared By: TS

RL

Parameter Flag Result Units Dilution RLDissolved Selenium 0.0580 mg/L 0.0100

Page Number: 8 of 56

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: Se, Total QC Batch: 33098 Prep Batch: 28574 Analytical Method: S 6010B Date Analyzed: 2006-12-26 Sample Preparation: 2006-12-15 Prep Method: S 3010A Analyzed By: RR Prepared By: TS

RL

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: TDS QC Batch: 33073 Prep Batch: 28749 Analytical Method: SM 2540C Date Analyzed: 2006-12-22 Sample Preparation: 2006-12-14

Prep Method: N/A
Analyzed By: JG
Prepared By: JR

RL

ParameterFlagResultUnitsDilutionRLTotal Dissolved Solids9990mg/L15.00

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis: Volatiles WTS QC Batch: 32895 Prep Batch: 28606

cis-1,2-Dichloroethene

1,2-Dichloroethane (EDC)

2,2-Dichloropropane

Analytical Method: S 8260B
Date Analyzed: 2006-12-16
Sample Preparation: 2006-12-16

RL

Prep Method: \$ 3510C Analyzed By: JG Prepared By: JG

Parameter Flag Result Units Dilution RL Bromochloromethane <1.00 μg/L 1.00 Dichlorodifluoromethane < 1.00 $\mu g/L$ 1 1.00 Chloromethane (methyl chloride) < 1.001 μ g/L 1.00 Vinyl Chloride < 1.00 μ g/L 1 1.00 Bromomethane (methyl bromide) < 5.00 μ g/L 1 5.00 Chloroethane < 1.00 μ g/L 1.00 Trichlorofluoromethane < 1.00 $\mu g/L$ 1.00 Acetone < 10.0 μ g/L 10.0 1 Iodomethane (methyl iodide) < 5.00 $\mu g/L$ 5.00 Carbon Disulfide $\mu {\rm g/L}$ < 1.001.00 Acrylonitrile < 1.00 μ g/L 1.00 2-Butanone (MEK) < 5.00 μ g/L 5.00 4-Methyl-2-pentanone (MIBK) < 5.00 µg/L 5.00 2-Hexanone < 5.00 $\mu g/L$ 5.00 trans 1,4-Dichloro-2-butene < 10.0 μ g/L 10.0 1.1-Dichloroethene < 1.00 μ g/L 1.00 Methylene chloride < 5.00 μ g/L 5.00 **MTBE** < 1.00 μ g/L 1.00 trans-1,2-Dichloroethene <1.00 $\mu g/L$ 1.00 1.1-Dichloroethane < 1.00 μ g/L 1.00

< 1.00

<1.00

< 1.00

continued ...

1.00

1.00

1.00

μg/L

 μ g/L

 μ g/L

sample 111621 continued...

Parameter			RL			
1,1 Trichloroerbane		Flag		Units	Dilution	RL
1-1-Dichloropropene			5.18	μg/L	1	1.00
Benzene	1,1,1-Trichloroethane		<1.00	μ g/L	1	1.00
Carbon Tetrachloride	1,1-Dichloropropene		< 1.00	μ g/L	1	1.00
1.2-Dichloropropane < 1.00	Benzene		< 1.00	$\mu \mathrm{g/L}$	1	1.00
Trichloroethene (TCE) < 1,00 µg/L 1 1,00 Dibromomethane (methylene bromide) < 1,00	Carbon Tetrachloride		< 1.00	μ g/L	1	1.00
Dibromomethane (methylene bromide)	1,2-Dichloropropane		<1.00	μ g/L	1	1.00
Dibromomethane (methylene bromide)	Trichloroethene (TCE)		< 1.00	μ g/L	1	1.00
2-Chloroethyl vinyl ether <5.00	Dibromomethane (methylene bromide)		<1.00		1	1.00
cis 1,3-Dichloropropene <1.00	Bromodichloromethane		< 1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	2-Chloroethyl vinyl ether		< 5.00	$\mu { m g/L}$	l	5.00
Toluen	cis-1,3-Dichloropropene		< 1.00	μ g/ L	1	1.00
1,1,2-Trichloroethane	trans-1,3-Dichloropropene		< 1.00	μ g/L	1	1.00
3-Dichloropropane	Toluene		< 1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
Dibromochloromethane	1,1,2-Trichloroethane		< 1.00	μ g/L	1	1.00
Dibromochlane (EDB)	1,3-Dichloropropane		< 1.00	μ g/ L	1	1.00
Tetrachloroethene (PCE) <1.00 $\mu g / L$ 1 1.00 Chlorobenzene <1.00 $\mu g / L$ 1 1.00 Li, 1, 2-Tetrachloroethane <1.00 $\mu g / L$ 1 1.00 Ethylbenzene <1.00 $\mu g / L$ 1 1.00 mp-Xylene <1.00 $\mu g / L$ 1 1.00 Bromoform <1.00 $\mu g / L$ 1 1.00 Styrene <1.00 $\mu g / L$ 1 1.00 o-Xylene <1.00 $\mu g / L$ 1 1.00 1,1,2,2-Tetrachloroethane <1.00 $\mu g / L$ 1 1.00 2,2-Tetrachloroethane <1.00 $\mu g / L$ 1 1.00 1,1,2,2-Tetrachloropethane <1.00 $\mu g / L$ 1 1.00 1,2,3-Trichloropethane <1.00 $\mu g / L$ 1 1.00 1,2,3-Trichloropethane <1.00 $\mu g / L$ 1 1.00 Bromobenzene <1.00 $\mu g / L$ 1 1.00	Dibromochloromethane		< 1.00		1	1.00
Tetrachloroethene (PCE) <1.00 µg/L 1 1.00 Chlorobenzene <1.00 µg/L 1 1.00 Ethylbenzene <1.00 µg/L 1 1.00 mp-Xylene <1.00 µg/L 1 1.00 Bromoform <1.00 µg/L 1 1.00 Styrene <1.00 µg/L 1 1.00 o-Xylene <1.00 µg/L 1 1.00 1,1,2,2-Tetrachloroethane <1.00 µg/L 1 1.00 2,2-Tetrachloropropane <1.00 µg/L 1 1.00 1,2,2-Tetrachloropropane <1.00 µg/L 1 1.00 2,-Chlorotoluene <1.00 µg/L 1 1.00 1,2,3-Trichloropropane <1.00 µg/L 1 1.00 1 sopropylbenzene <1.00 µg/L 1 1.00 n-Propylbenzene <1.00 µg/L 1 1.00 n-Propylbenzene <1.00 µg/L 1	1,2-Dibromoethane (EDB)		<1.00	$\mu \mathrm{g/L}$	1	1.00
1,1,2-Tetrachloroethane	Tetrachloroethene (PCE)		< 1.00		1	1.00
1,1,2-Tetrachloroethane	Chlorobenzene		< 1.00		1	1.00
mp-Xylene <1.00 μg/L 1 1.00 Bromoform <1.00	1,1,1,2-Tetrachloroethane		< 1.00		1	1.00
Bromoform < 1.00 μg/L 1 1.00 Styrene < 1.00	Ethylbenzene		< 1.00	μ g/L	1	1.00
Bromoform \$1.00	m,p-Xylene		< 1.00		1	1.00
Styrene <1.00 µg/L 1 1.00 o-Xylene <1.00	Bromoform		< 1.00		1	1.00
o-Xylene <1.00 μg/L 1 1.00 1,1,2,2-Tetrachloroethane <1.00	Styrene		< 1.00		1	1.00
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	o-Xylene		< 1.00		1	1.00
2-Chlorotoluene <1.00 $\mu g/L$ 1 1.00 1,2,3-Trichloropropane <1.00	1,1,2,2-Tetrachloroethane		< 1.00		1	1.00
1,2,3-Trichloropropane <1.00 $\mu g/L$ 1 1.00 Isopropylbenzene <1.00 $\mu g/L$ 1 1.00 Bromobenzene <1.00 $\mu g/L$ 1 1.00 n-Propylbenzene <1.00 $\mu g/L$ 1 1.00 n-Propylbenzene <1.00 $\mu g/L$ 1 1.00 1,3,5-Trimethylbenzene <1.00 $\mu g/L$ 1 1.00 1,2,4-Trimethylbenzene <1.00 $\mu g/L$ 1 1.00 1,4-Dichlorobenzene (para) <1.00 $\mu g/L$ 1 1.00 1,3-Dichlorobenzene (meta) <1.00 $\mu g/L$ 1 1.00 1,2-Dichlorobenzene (meta) <1.00 $\mu g/L$ 1 1.00 1,2-Dichlorobenzene (ortho) <1.00 $ \mu g/L 1 1.00 1,2-Dibromo-3-chloropropa$	2-Chlorotoluene		< 1.00		1	1.00
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	1,2,3-Trichloropropane		<1.00		l	1.00
n-Propylbenzene <1.00 $\mu g/L$ 1 1.00 $1,3,5$ -Trimethylbenzene <1.00 $\mu g/L$ 1 1.00 $1,2,4$ -Trimethylbenzene <1.00 $\mu g/L$ 1 1.00 $1,4$ -Dichlorobenzene (para) <1.00 $\mu g/L$ 1 1.00 $1,4$ -Dichlorobenzene (para) <1.00 $\mu g/L$ 1 1.00 $1,3$ -Dichlorobenzene (meta) <1.00 $\mu g/L$ 1 1.00 4 -Chlorotoluene <1.00 $\mu g/L$ 1 1.00 $1,2$ -Dichlorobenzene (ortho) <1.00 $\mu g/L$ 1 1.00 $1,2,3$ -Trichlorobenzene (ortho) <1.00 $\mu g/L$ 1 1.00 $1,2,3$ -Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 $1,2,3$ -Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 </td <td>Isopropylbenzene</td> <td></td> <td>< 1.00</td> <td></td> <td>1</td> <td>1.00</td>	Isopropylbenzene		< 1.00		1	1.00
n-Propylbenzene <1.00 $\mu g/L$ 1 1.00 1,3,5-Trimethylbenzene <1.00	Bromobenzene		< 1.00	μ g/L	1	1.00
tert-Butylbenzene <1.00 $\mu g/L$ 1 1.00 $1,2,4$ -Trimethylbenzene <1.00 $\mu g/L$ 1 1.00 $1,4$ -Dichlorobenzene (para) <1.00 $\mu g/L$ 1 1.00 sec-Butylbenzene <1.00 $\mu g/L$ 1 1.00 $1,3$ -Dichlorobenzene (meta) <1.00 $\mu g/L$ 1 1.00 $1,3$ -Dichlorobenzene (meta) <1.00 $\mu g/L$ 1 1.00 $1,3$ -Dichlorobenzene (meta) <1.00 $\mu g/L$ 1 1.00 4 -Chlorotoluene <1.00 $\mu g/L$ 1 1.00 4 -Chlorotoluene <1.00 $\mu g/L$ 1 1.00 $1,2$ -Dichlorobenzene (ortho) <1.00 $\mu g/L$ 1 1.00 $1,2$ -Dichlorobenzene (ortho) <1.00 $\mu g/L$ 1 1.00 $1,2,3$ -Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 $1,2,3$ -Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 $1,2,4$ -Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 N	n-Propylbenzene		< 1.00		1	1.00
tert-Butylbenzene <1.00 μ g/L 1 1.00 $1,2,4$ -Trimethylbenzene <1.00 μ g/L 1 1.00 $1,4$ -Dichlorobenzene (para) <1.00 μ g/L 1 1.00 sec-Butylbenzene <1.00 μ g/L 1 1.00 $1,3$ -Dichlorobenzene (meta) <1.00 μ g/L 1 1.00 $1,3$ -Dichlorobenzene (meta) <1.00 μ g/L 1 1.00 $1,3$ -Dichlorobenzene (meta) <1.00 μ g/L 1 1.00 4 -Chlorotoluene <1.00 μ g/L 1 1.00 $1,2$ -Dichlorobenzene (ortho) <1.00 μ g/L 1 1.00 $1,2$ -Dichlorobenzene (ortho) <1.00 μ g/L 1 1.00 $1,2$ -Dibromo-3-chloropropane <1.00 μ g/L 1 1.00 $1,2,3$ -Trichlorobenzene <5.00 μ g/L 1 5.00 $1,2,4$ -Trichlorobenzene <5.00 μ g/L 1 5.00 Naphthalene <5.00 μ g/L 1 5.00 Hexachlorobutadi	1,3,5-Trimethylbenzene		< 1.00	μ g/L	1	1.00
1,4-Dichlorobenzene (para) <1.00 $\mu g/L$ 1 1.00 sec-Butylbenzene <1.00 $\mu g/L$ 1 1.00 1,3-Dichlorobenzene (meta) <1.00 $\mu g/L$ 1 1.00 p-Isopropyltoluene <1.00 $\mu g/L$ 1 1.00 4-Chlorotoluene <1.00 $\mu g/L$ 1 1.00 1,2-Dichlorobenzene (ortho) <1.00 $\mu g/L$ 1 1.00 n-Butylbenzene <1.00 $\mu g/L$ 1 1.00 n-Butylbenzene <1.00 $\mu g/L$ 1 1.00 1,2-Dibromo-3-chloropropane <5.00 $\mu g/L$ 1 5.00 1,2,3-Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 1,2,4-Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 Naphthalene <5.00 $\mu g/L$ 1 5.00 Hexachlorobutadiene <5.00 $\mu g/L$ 1 5.00 Isopropyl Alcohol <5.00 $\mu g/L$ 1 5.00 Tert-butyl Alcohol <5.00 $\mu $	tert-Butylbenzene		< 1.00		1	1.00
1,4-Dichlorobenzene (para) <1.00 μ g/L 1 1.00 sec-Butylbenzene <1.00 μ g/L 1 1.00 1,3-Dichlorobenzene (meta) <1.00 μ g/L 1 1.00 p-Isopropyltoluene <1.00 μ g/L 1 1.00 4-Chlorotoluene <1.00 μ g/L 1 1.00 1,2-Dichlorobenzene (ortho) <1.00 μ g/L 1 1.00 n-Butylbenzene <1.00 μ g/L 1 1.00 1,2-Dibromo-3-chloropropane <5.00 μ g/L 1 5.00 1,2,3-Trichlorobenzene <5.00 μ g/L 1 5.00 1,2,4-Trichlorobenzene <5.00 μ g/L 1 5.00 Naphthalene <5.00 μ g/L 1 5.00 Hexachlorobutadiene <5.00 μ g/L 1 5.00 Isopropyl Alcohol <5.00 μ g/L 1 5.00 Tert-butyl Alcohol <5.00 μ g/L 1 5.00	1,2,4-Trimethylbenzene		< 1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1,4-Dichlorobenzene (para)		< 1.00	μ g/L	1	1.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	sec-Butylbenzene		< 1.00	$\mu \mathrm{g/L}$	1	1.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1,3-Dichlorobenzene (meta)		< 1.00		1	1.00
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	p-lsopropyltoluene		< 1.00		1	1.00
1,2-Dichlorobenzene (ortho) <1.00 $\mu g/L$ 1 1.00 n-Butylbenzene <1.00 $\mu g/L$ 1 1.00 1,2-Dibromo-3-chloropropane <5.00 $\mu g/L$ 1 5.00 1,2,3-Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 1,2,4-Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 Naphthalene <5.00 $\mu g/L$ 1 5.00 Hexachlorobutadiene <5.00 $\mu g/L$ 1 5.00 Isopropyl Alcohol <5.00 $\mu g/L$ 1 5.00 Tert-butyl Alcohol <5.00 $\mu g/L$ 1 5.00	4-Chlorotoluene		< 1.00		1	1.00
n-Butylbenzene <1.00 μ g/L 1 1.00 1,2-Dibromo-3-chloropropane <5.00 μ g/L 1 5.00 1,2,3-Trichlorobenzene <5.00 μ g/L 1 5.00 1,2,4-Trichlorobenzene <5.00 μ g/L 1 5.00 Naphthalene <5.00 μ g/L 1 5.00 Hexachlorobutadiene <5.00 μ g/L 1 5.00 Isopropyl Alcohol <5.00 μ g/L 1 5.00 Tert-butyl Alcohol <5.00 μ g/L 1 5.00	1,2-Dichlorobenzene (ortho)		< 1.00		1	1.00
1,2-Dibromo-3-chloropropane <5.00 $\mu g/L$ 1 5.00 1,2,3-Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 1,2,4-Trichlorobenzene <5.00 $\mu g/L$ 1 5.00 Naphthalene <5.00 $\mu g/L$ 1 5.00 Hexachlorobutadiene <5.00 $\mu g/L$ 1 5.00 Isopropyl Alcohol <5.00 $\mu g/L$ 1 5.00 Tert-butyl Alcohol <5.00 $\mu g/L$ 1 5.00	n-Butylbenzene		< 1.00		1	1.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1,2-Dibromo-3-chloropropane		< 5.00		1	5.00
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	1,2,3-Trichlorobenzene		< 5.00		1	5.00
Naphthalene < 5.00 μ g/L 1 5.00 Hexachlorobutadiene < 5.00	1,2,4-Trichlorobenzene				1	
Hexachlorobutadiene <5.00 $μg/L$ 1 5.00 Isopropyl Alcohol <5.00 $μg/L$ 1 5.00 Tert-butyl Alcohol <5.00 $μg/L$ 1 5.00	Naphthalene		< 5.00		1	
Isopropyl Alcohol <5.00 μ g/L1 5.00 Tert-butyl Alcohol <5.00 μ g/L1 5.00			< 5.00		1	
Tert-butyl Alcohol <5.00 μ g/L 1 5.00			< 5.00		1	
	• • •				1	
	1,4-Dioxane		< 5.00	μg/L	1	5.00

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Work Order: 6121324 Page Number: 10 of 56 HELSTF Groundwater Samples

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Dibromofluoromethane		52.5	μg/L	1	50.0	105	82.4 - 115
Toluene-d8		50.9	μ g/L	l	50.0	102	89.7 - 108
4-Bromofluorobenzene (4-BFB)		43.9	μg/L	1	50.0	88	84.6 - 114

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis:	Zn, Dissolved	Analytical Method:	S 6010B	Prep Method:	S 3005A
QC Batch:	32994	Date Analyzed:	2006-12-20	Analyzed By:	RR
Prep Batch:	28613	Sample Preparation:	2006-12-18	Prepared By:	TS
		RL			
Parameter	Flag	Result	Units	Dilution	RL
Dissolved Zi	ne	< 0.00500	mø/L	1	0.00500

Sample: 111621 - HLSF-0085-HMW-123-1206

Analysis:	Zn, Total	Analytical Method:	S 6010B	Prep Method:	S 3010A
QC Batch:	33098	Date Analyzed:	2006-12-26	Analyzed By:	RR
Prep Batch:	28574	Sample Preparation:	2006-12-15	Prepared By:	TS
		RL			
Parameter	Flag	Result	Units	Dilution	RL
Total Zinc		< 0.00500	mg/L	1	0.00500

Sample: 111622 - HLSF-0085-TB-787-1206

Analysis: QC Batch: Prep Batch:	Analytical Method: Date Analyzed: Sample Preparation:	2006-12-20	Prep Method: Analyzed By: Prepared By:	JG
		RI.		

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Bromochloromethane		<1.00	μ g/L	1	· 1.00
Dichlorodifluoromethane		<1.00	μ g/L	1	1.00
Chloromethane (methyl chloride)		<1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
Vinyl Chloride		<1.00	μ g/L	1	1.00
Bromomethane (methyl bromide)		< 5.00	μ g/L	1	5.00
Chloroethane		< 1.00	μ g/L	1	1.00
Trichlorofluoromethane		<1.00	μ g/L	l	1.00
Acetone		< 10.0	$\mu \mathrm{g/L}$	1	10.0
Iodomethane (methyl iodide)		< 5.00	$\mu \mathrm{g/L}$	1	5.00
Carbon Disulfide		< 1.00	μ g/L	l	1.00
Acrylonitrile		<1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
2-Butanone (MEK)		< 5.00	μ g/L	1	5.00
4-Methyl-2-pentanone (MIBK)		< 5.00	μ g/L	1	5.00
2-Hexanone		< 5.00	$\mu \mathrm{g/L}$	1	5.00
trans 1,4-Dichloro-2-butene		< 10.0	μ g/L	1	10.0
1,1-Dichloroethene		<1.00	μg/L	1	1.00

continued...

sample 111622 continued...

		RL			
Parameter	Flag	Result	Units	Dilution	RL
Methylene chloride	^ ^ ~ 5	< 5.00	μg/L	1	5.00
MTBE		<1.00	μg/L	1	1.00
trans-1,2-Dichloroethene		<1.00	μg/L	1	1.00
1,1-Dichloroethane		<1.00	μg/L	1	1.00
cis-1,2-Dichloroethene		<1.00	μg/L	1	1.00
2,2-Dichloropropane		<1.00	μg/L	ĺ	1.00
1,2-Dichloroethane (EDC)		<1.00	μg/L	1	1.00
Chloroform		<1.00	μg/L	1	1.00
1,1,1-Trichloroethane		<1.00	μg/L	1	1.00
1,1-Dichloropropene		<1.00	μg/L	1	1.00
Benzene		<1.00	μg/L	1	1.00
Carbon Tetrachloride		<1.00	μg/L	1	1.00
1,2-Dichloropropane		< 1.00	μg/L	1	1.00
Trichloroethene (TCE)		< 1.00	μg/L	1	1.00
Dibromomethane (methylene bromide)		< 1.00	μg/L	1	1.00
Bromodichloromethane		< 1.00	μg/L	1	1.00
2-Chloroethyl vinyl ether		< 5.00	μg/L	1	5.00
cis-1,3-Dichloropropene		<1.00	μg/L	1	1.00
trans-1,3-Dichloropropene		<1.00	μg/L	1	1.00
Toluene		<1.00	μg/L	1	1.00
1,1,2-Trichloroethane		< 1.00	μg/L	1	1.00
1,3-Dichloropropane		< 1.00	$\mu { m g/L}$	1	1.00
Dibromochloromethane		< 1.00	μg/L	1	1.00
1,2-Dibromoethane (EDB)		< 1.00	μg/L	1	1.00
Tetrachloroethene (PCE)		< 1.00	μg/L	1	1.00
Chlorobenzene		<1.00	μg/L	1	1.00
1,1,1,2-Tetrachloroethane		<1.00	$\mu { m g/L}$	1	1.00
Ethylbenzene		< 1.00	μg/L	1	1.00
m,p-Xylene		< 1.00	μ g/L	1	1.00
Bromoform		< 1.00	μg/L	1	1.00
Styrene		< 1.00	μg/L]	1.00
o-Xylene		< 1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
1,1,2,2-Tetrachloroethane		< 1.00	μg/L	1	1.00
2-Chlorotoluene		< 1.00	μg/L	1	1.00
1,2,3-Trichloropropane		< 1.00	$\mu { m g/L}$	1	1.00
Isopropylbenzene		< 1.00	μg/L	1	1.00
Bromobenzene		< 1.00	μ g/L	Ì	1.00
n-Propylbenzene		<1.00	μ g/L	1	1.00
1,3,5-Trimethylbenzene		< 1.00	$\mu \mathrm{g/L}$	1	1.00
tert-Butylbenzene		<1.00	$\mu \mathrm{g/L}$	1	1.00
1,2,4-Trimethylbenzene		<1.00	$\mu \mathrm{g}/\mathrm{L}$	1	1.00
1,4-Dichlorobenzene (para)		< 1.00	$\mu { m g/L}$	1	1.00
sec-Butylbenzene		<1.00	μ g/L	1	1.00
1,3-Dichlorobenzene (meta)		< 1.00	$\mu \mathrm{g/L}$	1	1.00
p-Isopropyltoluene		< 1.00	$\mu { m g/L}$	1	1.00
4-Chlorotoluene		<1.00	$\mu \mathrm{g/L}$	1	1.00
1,2-Dichlorobenzene (ortho)		<1.00	$\mu { m g/L}$	1	1.00
n-Butylbenzene		<1.00	μ g/L	1	1.00
1,2-Dibromo-3-chloropropane		< 5.00	μg/L	1	5.00

sample 111622 continued...

		RL			
Parameter	Flag	Result	Units	Dilution	RL
1,2,3-Trichlorobenzene		< 5.00	μg/L	1	5.00
1,2,4-Trichlorobenzene		< 5.00	μ g/L	l	5.00
Naphthalene		< 5.00	μ g/L	1	5.00
Hexachlorobutadiene		< 5.00	μg/L	1	5.00
Isopropyl Alcohol		189	μ g/L	1	5.00
Tert-butyl Alcohol		14.2	μ g/L	1	5.00
1,4-Dioxane		< 5.00	μ g/L	1	5.00

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Dibromofluoromethane		50.4	μg/L	l	50.0	101	82.4 - 115
Toluene-d8		49.4	μg/L	1	50.0	99	89.7 - 108
4-Bromofluorobenzene (4-BFB)		46.5	μ g/L	1	50.0	93	84.6 - 114

Method Blank (1) QC Batch: 32862

QC Batch: 32862 Date Analyzed:

2006-12-15

Analyzed By: TS

Prep Batch: 28579

QC Preparation:

2006-12-15

Prepared By: TS

MDL

Flag Result Units RL Parameter 0.0002 < 0.0000217 Total Mercury mg/L

Method Blank (1) QC Batch: 32895

QC Batch: 32895 Prep Batch: 28606 Date Analyzed: QC Preparation:

2006-12-16 2006-12-16 Analyzed By: JG Prepared By: JG

ICIM

		MDL		
Parameter	Flag	Result	Units	RL
Bromochloromethane		< 0.0699	$\mu { m g/L}$	1
Dichlorodifluoromethane		< 0.0598	$\mu \mathrm{g/L}$	1
Chloromethane (methyl chloride)		< 0.230	μ g/L	1
Vinyl Chloride		< 0.0902	μ g/L	1
Bromomethane (methyl bromide)		< 0.740	μ g/L	5
Chloroethane		< 0.195	μ g/L	1
Trichlorofluoromethane		< 0.160	$\mu \mathrm{g/L}$	1
Acetone		< 0.854	μ g/L	10
Iodomethane (methyl iodide)		< 0.112	μ g/L	5
Carbon Disulfide		< 0.0764	μg/L	1
Acrylonitrile		< 0.184	$\mu \mathrm{g/L}$	1
2-Butanone (MEK)		< 0.394	μ g/L	5
4-Methyl-2-pentanone (MIBK)		< 0.484	$\mu \mathrm{g/L}$	5
2-Hexanone		< 0.0975	μ g/L	5
trans 1,4-Dichloro-2-butene		< 0.420	μ g/L	10
1,1-Dichloroethene		< 0.0736	μ g/L	1
Methylene chloride		1.19	μg/L	5

method blank continued ...

memou orank commuea		MDL		
Parameter	Flag	Result	Units	RL
MTBE		< 0.0504	μ g/L	1
trans-1,2-Dichloroethene		< 0.0598	μ g/L	1
1,1-Dichloroethane		< 0.0299	μ g/L	1
cis-1,2-Dichloroethene		< 0.101	μ g/L	1
2,2-Dichloropropane		< 0.0665	μ g/L	1
1,2-Dichloroethane (EDC)		< 0.0557	μ g/L	1
Chloroform		< 0.0475	$\mu \mathrm{g/L}$	1
1,1,1-Trichloroethane		< 0.0846	$\mu \mathrm{g/L}$	1
1,1-Dichloropropene		< 0.0423	μ g/L	1
Benzene		< 0.0495	μ g/L	1
Carbon Tetrachloride		< 0.121	μ g/L	1
1,2-Dichloropropane		< 0.0933	μ g/L	1
Trichloroethene (TCE)		< 0.0495	$\mu \mathrm{g}/\mathrm{L}$	1
Dibromomethane (methylene bromide)		< 0.0640	μ g/L	1
Bromodichloromethane		< 0.0651	μ g/L	l
2-Chloroethyl vinyl ether		< 0.0905	μ g/L	5
cis-1,3-Dichloropropene		< 0.0640	μ g/L	l
trans-1,3-Dichloropropene		< 0.0504	μg/L	1
Toluene		0.390	$\mu \mathrm{g}/\mathrm{L}$	1
1,1,2-Trichloroethane		< 0.106	$\mu \mathrm{g/L}$	1
1,3-Dichloropropane		< 0.0625	$\mu \mathrm{g}/\mathrm{L}$	1
Dibromochloromethane		< 0.0791	$\mu \mathrm{g}/\mathrm{L}$	1
1,2-Dibromoethane (EDB)		< 0.0460	μg/L	1
Tetrachloroethene (PCE)		< 0.0696	μg/L	1
Chlorobenzene		< 0.0217	$\mu \mathrm{g}/\mathrm{L}$	1
1,1,1,2-Tetrachloroethane		< 0.125	μg/L	i
Ethylbenzene		< 0.0566	μg/L	1
m,p-Xylene		< 0.0363	μg/L	1
Bromoform		< 0.0859	μg/L	1
Styrene		< 0.0394	μg/L	1
o-Xylene		< 0.0505	μg/L	1
1,1,2,2-Tetrachloroethane		< 0.0672	μg/L	1
2-Chlorotoluene		< 0.0283	μg/L	1
1,2,3-Trichloropropane		< 0.0679	μg/L	1
Isopropylbenzene		< 0.0406	μg/L	1
Bromobenzene		< 0.103	μg/L	1
n-Propylbenzene		< 0.0423	μg/L	1
1,3,5-Trimethylbenzene		< 0.0557	μg/L	1
tert-Butylbenzene		< 0.0770	μ g/L	1
1,2,4-Trimethylbenzene		< 0.0336	$\mu \mathrm{g/L}$	1
1,4-Dichlorobenzene (para)		< 0.0672	$\mu \mathrm{g/L}$	î
sec-Butylbenzene		< 0.0439	μg/L	1
1,3-Dichlorobenzene (meta)		< 0.0672	μg/L μg/L	1
p-Isopropyltoluene		< 0.0513	μg/L μg/L	1
4-Chlorotoluene		< 0.0460		1
1,2-Dichlorobenzene (ortho)		<0.0400	μg/L	1
		< 0.0429	μg/L	1
n-Butylbenzene			μg/L	J e
1,2-Dibromo-3-chloropropane		< 0.538	$\mu \mathrm{g/L}$	5
1,2,3-Trichlorobenzene		< 0.504	μg/L	5
1,2,4-Trichlorobenzene		< 0.166	μ g/L	5 continued

continued...

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method blank continued ...

		MDL		
Parameter	Flag	Result	Units	RL
Naphthalene		< 0.417	μg/L	5
Hexachlorobutadiene		< 0.176	$\mu \mathrm{g}/\mathrm{L}$	5
Isopropyl Alcohol		< 5.00	$\mu \mathrm{g}/\mathrm{L}$	5
Tert-butyl Alcohol		< 5.00	μ g/L	5
1,4-Dioxane		< 5.00	μg/L	5

					Spike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Dibromofluoromethane		51.8	μg/L	1	50.0	104	82.4 - 115
Toluene-d8		52.1	μ g/L	1	50.0	104	89.7 - 108
4-Bromofluorobenzene (4-BFB)		45.6	μ g/L	1	50.0	91	84.6 - 114

Method Blank (1) QC Batch: 32909

QC Batch: 32909 Prep Batch: 28617 Date Analyzed: 2006-12-13 QC Preparation: 2006-12-13 Analyzed By: DR Prepared By: DR

MDL

Parameter Flag Result Units RL Specific Conductance 0.00 μ MHOS/cm

Method Blank (1) QC Batch: 32918

QC Batch: 32918 Prep Batch: 28627 Date Analyzed: 2006-12-15 QC Preparation: 2006-12-15

Analyzed By: JG Prepared By: JG

MDL Parameter Flag Result Units RL Hydroxide Alkalinity <1.00 mg/L as CaCo3 1 Carbonate Alkalinity < 1.00 mg/L as CaCo3 1 Bicarbonate Alkalinity < 4.00 mg/L as CaCo3 4 Total Alkalinity < 2.38 mg/L as CaCo3 4

Method Blank (1) QC Batch: 32994

QC Batch: 32994

Date Analyzed:

2006-12-20

Analyzed By: RR Prepared By: TS

Prep Batch: 28613

QC Preparation: 2006-12-18

Prepared By:

Method Blank (1) QC Batch: 32994

QC Batch: 32994 Prep Batch: 28613 Date Analyzed: 2006-12-20 QC Preparation: 2006-12-18

Analyzed By: RR Prepared By: TS

Prep Batch:

28613

Work Order: 6121324

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Prepared By:

TS

HELSTF Groundwater Samples

MDL Parameter Flag Result Units RL Dissolved Arsenic < 0.00360 0.005 mg/L Method Blank (1) QC Batch: 32994 QC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By: RR Prep Batch: 28613 QC Preparation: 2006-12-18 Prepared By: TS **MDL** Parameter Flag Result Units RLDissolved Barium < 0.000450 mg/L 0.01 Method Blank (1) QC Batch: 32994 QC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By: RR Prep Batch: 28613 QC Preparation: 2006-12-18 Prepared By: TS **MDL** Parameter Flag Result Units RL Dissolved Cadmium < 0.000577 mg/L 0.001 Method Blank (I) QC Batch: 32994 OC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By: RR Prep Batch: 28613 QC Preparation: 2006-12-18 Prepared By: TS MDL Parameter Flag Result Units RL Dissolved Chromium < 0.00357 mg/L 0.005 Method Blank (1) QC Batch: 32994 QC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By: RRPrep Batch: 28613 QC Preparation: 2006-12-18 Prepared By: TS MDL Parameter Flag Result Units RL Dissolved Copper < 0.00127 mg/L 0.0125 Method Blank (1) QC Batch: 32994 QC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By: RR

QC Preparation:

2006-12-18

Work Order: 6121324

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HELSTF Groundwater Samples

Dissolved Lead	Parameter	Flag	Units			
Method Blank (1) QC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By: RR Prep Batch: 28613 QC Preparation: 2006-12-18 Prepared By: TS		8	Result <0.00398			RL 0.005
QC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By: RR						
Prep Batch: 28613	Method Blank (1)	QC Batch: 32994				
Prepared Batch: 28613 QC Preparation: 2006-12-18 Prepared By: TS	QC Batch: 32994		Date Analyzed: 2006-12-20		Analyzed By:	RR
Parameter Flag Result Units RL Dissolved Selenium < 0.00556	Prep Batch: 28613		QC Preparation: 2006-12-18		Prepared By:	TS
Dissolved Selenium	n.	731		7 7 7		T. I
Method Blank (I) QC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By: RR Prep Batch: 28613 R Prep Batch: 28613 QC Preparation: 2006-12-18 Prepared By: TS MDL Result Units RL Dissolved Zinc Flag Result Units Units RL Dissolved Zinc VO.00300 mg/L 0.005 Method Blank (I) QC Batch: 33006 Date Analyzed: 2006-12-15 Prepared By: WB Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB Prepared By: WB Prep Batch: 28666 MDL Parameter Flag Result Units RL Nitrate-N RL Nitrate-N 0.0106 mg/L 0.2 Method Blank (I) QC Batch: 33006 Date Analyzed: 2006-12-15 Prepared By: WB Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB Prepared By: WB Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB Prepared By: W		Flag				
QC Batch: 32994 Prep Batch: Date Analyzed: 2006-12-20 2006-12-18 Analyzed By: RR Prep Batch: Parameter Flag Result Units RL Dissolved Zine <0.00300	Dissolved Scientum	<u>.</u>	<0,00330	mg/L		0.01
Prep Batch: 28613 QC Preparation: 2006-12-18 Prepared By: TS	Method Blank (1)	QC Batch: 32994				
Parameter					Analyzed By:	RR
Parameter Flag Result Units RL Dissolved Zinc < 0.00300	Prep Batch: 28613		QC Preparation: 2006-12-18		Prepared By:	TS
Dissolved Zinc < 0.00300 mg/L 0.005	Darameter	Flog		Linita		DΪ
Method Blank (I) QC Batch: 33006 QC Batch: 33006 Date Analyzed: 2006-12-15 Analyzed By: WB Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB Parameter Flag Result Units RL Nitrate-N <0.0106		riag				
QC Batch: 33006 Date Analyzed: 2006-12-15 Analyzed By: WB Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB Parameter Flag Result Units RL Nitrate-N <0.0106 mg/L 0.2 Method Blank (I) QC Batch: 33006 Date Analyzed: 2006-12-15 Analyzed By: WB Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB MDL MDL MDL NB NB NB Parameter Flag Result Units RL 0.5 Chloride <0.0181 mg/L 0.5 0.5 Sulfate <0.0485 mg/L 0.5 Method Blank (I) QC Batch: 33017 Date Analyzed: 2006-12-21 Analyzed By: SM	Method Blank (1)	OC Batch: 33006				
Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB		(Date Analyzed: 2006-12-15		Analyzed By	WB
Parameter Flag Result Units RL Nitrate-N < 0.0106	•					
Method Blank (1) QC Batch: 33006 Date Analyzed: 2006-12-15 Analyzed By: WB Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB Prepared By: WB Prepared By: WB Parameter Flag Result Units RL Chloride Chloride <0.0181	_					
Method Blank (1) QC Batch: 33006 QC Batch: 33006 Date Analyzed: 2006-12-15 Analyzed By: WB Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB MDL MDL Units RL Chloride <0.0181		Flag				
QC Batch: 33006 Prep Batch: Date Analyzed: 2006-12-15 QC Preparation: Analyzed By: WB Prepared By: WB Prepared By: WB WB Parameter Flag Result Units RL Chloride 0.5 Sulfate 0.5 Sulfate <t< td=""><td>Nitrate-N</td><td></td><td><0.0106</td><td>mg/L</td><td></td><td>0.2</td></t<>	Nitrate-N		<0.0106	mg/L		0.2
Prep Batch: 28666 QC Preparation: 2006-12-15 Prepared By: WB MDL MDL Result Units RL Chloride <0.0181	Method Blank (1)	QC Batch: 33006				
MDL Parameter Flag Result Units RL Chloride <0.0181 mg/L 0.5 Sulfate <0.0485 mg/L 0.5 Method Blank (1) QC Batch: 33017 Date Analyzed: 2006-12-21 Analyzed By: SM	-					
Parameter Flag Result Units RL Chloride <0.0181	Prep Batch: 28666		QC Preparation: 2006-12-15		Prepared By:	WB
Chloride <0.0181 mg/L 0.5 Sulfate <0.0485	Parameter	Flag		Units		RL
Sulfate < 0.0485 mg/L 0.5 Method Blank (1) QC Batch: 33017 Date Analyzed: 2006-12-21 Analyzed By: SM		8				0.5
QC Batch: 33017 Date Analyzed: 2006-12-21 Analyzed By: SM	Sulfate		<0.0485	-		0.5
	Method Blank (1)	QC Batch: 33017				
	QC Batch; 33017		Date Analyzed: 2006-12-21		Analyzed By:	SM
	Prep Batch: 28703					

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HELSTF Groundwater Samples 7 **MDL** Flag Result Units RLParameter < 0.820 mg/L Ammonia-N Method Blank (1) QC Batch: 33035 Date Analyzed: 2006-12-21 Analyzed By: RR QC Batch: 33035 Prepared By: TS 28613 QC Preparation: 2006-12-18 Prep Batch: MDL Result Units RLParameter Flag < 0.0309 mg/L 0.5 Dissolved Sodium Method Blank (1) QC Batch: 33073 Analyzed By: QC Batch: Date Analyzed: 2006-12-22 JG 33073 Prep Batch: Prepared By: JG 28749 QC Preparation: 2006-12-14 MDL RLResult Units Parameter Flag < 5.00 mg/L 5 Total Dissolved Solids Method Blank (1) QC Batch: 33096 Analyzed By: JG Date Analyzed: 2006-12-20 QC Batch: 33096 Prepared By: JG Prep Batch: 28772 QC Preparation: 2006-12-20

Units	RL
μg/L	1
μ g/L	5
μ g/L	1
μ g/L	1
μ g/L	10
μ g/L	5
μ g/L	1
μ g/L	I
μ g/L	5
μ g/L	5
μ g/L	5
μ g/L	10
$\mu \mathrm{g/L}$	1
$\mu \mathrm{g}/\mathrm{L}$	5
μ g/L	1
μ g/L	1
$\mu extsf{g}/ extsf{L}$	1
-	

method blank continued . . .

mentos cram continuos ().	MDL		
Parameter	Flag Result	Units	RL
cis-1,2-Dichloroethene	< 0.101	μg/L	1
2,2-Dichloropropane	< 0.0665	μ g/L	1
1,2-Dichloroethane (EDC)	< 0.0557	μ g/L	1
Chloroform	< 0.0475	μ g/L	1
1,1,1-Trichloroethane	< 0.0846	$\mu \mathrm{g/L}$	1
1,1-Dichloropropene	< 0.0423	μ g/L	1
Benzene	< 0.0495	μ g/L	i
Carbon Tetrachloride	< 0.121	μg/L	1
1,2-Dichloropropane	< 0.0933	μ g/L	1
Trichloroethene (TCE)	< 0.0495	$\mu { m g/L}$	1
Dibromomethane (methylene bromide)	< 0.0640	μ g/L	1
Bromodichloromethane	< 0.0651	μ g/L	1
2-Chloroethyl vinyl ether	< 0.0905	μg/L	5
cis-1,3-Dichloropropene	< 0.0640	$\mu \mathrm{g}/\mathrm{L}$	1
trans-1,3-Dichloropropene	< 0.0504	μ g/L	1
Toluene	0.610	μ g/L	1
1,1,2-Trichloroethane	< 0.106	μg/L	1
1,3-Dichloropropane	< 0.0625	μg/L	1
Dibromochloromethane	< 0.0791	μg/L	1
1,2-Dibromoethane (EDB)	< 0.0460	μg/L	1
Tetrachloroethene (PCE)	< 0.0696	μg/L	1
Chlorobenzene	< 0.0217	μg/L	1
1,1,1,2-Tetrachloroethane	< 0.125	μ g/L	1
Ethylbenzene	< 0.0566	μg/L	1
m,p-Xylene	< 0.0363	μg/L	j
Bromoform	< 0.0859		1
Styrene	< 0.0394		1
o-Xylene	< 0.0505	μg/L	1
1,1,2,2-Tetrachloroethane	< 0.0672		1
2-Chlorotoluene	< 0.0283	μg/L	1
1,2,3-Trichloropropane	< 0.0679		1
Isopropylbenzene	<0.0406	, •	1
Bromobenzene	<0.103	μg/L	1
n-Propylbenzene	< 0.0423	μg/L	1
1,3,5-Trimethylbenzene	< 0.0557	μg/L	ĺ
tert-Butylbenzene	< 0.0770	μg/L	
1,2,4-Trimethylbenzene	< 0.0336	, _	1
1,4-Dichlorobenzene (para)	<0.0672	1 0	1
sec-Butylbenzene	<0.0439		1
1,3-Dichlorobenzene (meta)	< 0.0672	, 0	î
p-Isopropyltoluene	<0.0513	, 0	1
4-Chlorotoluene	<0.0460	, 0	1
1,2-Dichlorobenzene (ortho)	<0.0629	7.0	1
n-Butylbenzene	<0.0400	1.0	1
1,2-Dibromo-3-chloropropane	<0.538	, 0	5
1,2,3-Trichlorobenzene	< 0.504	, 0	5
1,2,4-Trichlorobenzene	<0.304	, 0	
* *		, 0	5
Naphthalene Navashlavahutadiana	<0.417	, 0	5
Hexachlorobutadiene	< 0.176	, 0	5
Isopropyl Alcohol	. <5.00	μ g/L	5

continued...

HELSTF Groundwater Samples

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		HELSTF GR	minuwater Sample	.5		
method blank continued						
_				DL		
Parameter		Flag		sult	Units	RL
Tert-butyl Alcohol				5.00	μg/L	5 5
1,4-Dioxane			< 2	5.00	μg/L	3
				Spike	Percent	Recovery
Surrogate	Flag	Result Un		Amount	Recovery	Limits
Dibromofluoromethane		49.5 μg		50.0	99	82.4 - 115
Toluene-d8	in i	49.1 μg		50.0	98	89.7 - 108
4-Bromofluorobenzene (4-BF	·R)	47.2 μg	/L 1	50.0	94	84.6 - 114
Mathad Plank (1) OC Po	atch: 33098					
• • • • • • • • • • • • • • • • • • • •	atcii. 33096					
QC Batch: 33098		Date Analyzed				yzed By: RR
Prep Batch: 28574		QC Preparation	: 2006-12-15		Prep	ared By: TS
			MDL			
	Flag		Result	U	nits	RL
Parameter						0.002
Total Silver	atch: 33098	<0	.000274	m	g/L	0.002
Total Silver Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter	atch: 33098 Flag	Date Analyzed QC Preparation	2006-12-26 : 2006-12-15 MDL Result		Anal	yzed By: RR ared By: TS RL
Total Silver Method Blank (1) QC Batch: 33098 Prep Batch: 28574		Date Analyzed QC Preparation	2006-12-26 :: 2006-12-15 MDL	Ţ	Anal Prep	yzed By: RR ared By: TS
Total Silver Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic		Date Analyzed QC Preparation	2006-12-26 : 2006-12-15 MDL Result	Ţ	Anal Prep Units	yzed By: RR ared By: TS RL
Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic Method Blank (1) QC Batch	Flag	Date Analyzed QC Preparation	2006-12-26 : 2006-12-15 MDL Result <0.00489	Ţ	Anal Prep Units mg/L	yzed By: RR ared By: TS RL
Total Silver Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic Method Blank (1) QC Batch: 33098	Flag	Date Analyzed QC Preparation	2006-12-26 : 2006-12-15 MDL Result <0.00489	Ţ	Anal Prep Units mg/L Anal	yzed By: RR ared By: TS RL 0.01
Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic Method Blank (1) QC Batch: 33098	Flag	Date Analyzed QC Preparation	2006-12-26 i: 2006-12-15 MDL Result (0.00489	Ţ	Anal Prep Units mg/L Anal	yzed By: RR ared By: TS RL 0.01
Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic Method Blank (1) QC Batch: 33098 Prep Batch: 28574	Flag atch: 33098	Date Analyzed QC Preparation	2006-12-26 : 2006-12-15 MDL Result <0.00489	Y 1	Anal Prep Units mg/L Anal	yzed By: RR ared By: TS RL 0.01
Total Silver Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic Method Blank (1) QC Batch: 33098 Prep Batch: 28574	Flag	Date Analyzed QC Preparation Outline Analyzed QC Preparation	2006-12-26 E: 2006-12-15 MDL Result (0.00489	1	Anal Prep Units mg/L Anal Prep	yzed By: RR ared By: TS RL 0.01 yzed By: RR ared By: TS
Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Barium	Flag atch: 33098 Flag	Date Analyzed QC Preparation Outline Analyzed QC Preparation	2006-12-26 : 2006-12-15 MDL Result <0.00489 : 2006-12-26 : 2006-12-15 MDL Result	1	Anal Prep Units mg/L Anal Prep Units	yzed By: RR ared By: TS RL 0.01 yzed By: RR ared By: TS RL
Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Barium Method Blank (1) QC Batch: 28574	Flag atch: 33098	Date Analyzed QC Preparation	2006-12-26 2006-12-15 MDL Result (0.00489 2006-12-26 2006-12-15 MDL Result 0.000450	1	Anal Prep Units mg/L Anal Prep Units mg/L	yzed By: RR ared By: TS RL 0.01 yzed By: RR ared By: TS RL 0.01
Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Arsenic Method Blank (1) QC Batch: 33098 Prep Batch: 28574 Parameter Total Barium	Flag atch: 33098 Flag	Date Analyzed QC Preparation Outline Analyzed QC Preparation	2006-12-26 2006-12-15 MDL Result (0.00489 2006-12-26 2006-12-15 MDL Result 0.000450	1	Anal Prep Units mg/L Anal Prep Units mg/L	yzed By: RR ared By: TS RL 0.01 yzed By: RR ared By: TS RL

MDL

Result

< 0.000268

Units

mg/L

RL

0.001

Flag

Parameter

Total Cadmium

Parameter

Total Selenium

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Page Number: 20 of 56 **HELSTF** Groundwater Samples Method Blank (1) QC Batch: 33098 OC Batch: Analyzed By: 33098 Date Analyzed: 2006-12-26 RR Prep Batch: 28574 QC Preparation: 2006-12-15 Prepared By: TS **MDL** RLFlag Units Parameter Result **Total Chromium** < 0.00357 mg/L 0.005 Method Blank (1) QC Batch: 33098 QC Batch: 33098 Date Analyzed: 2006-12-26 Analyzed By: RR Prep Batch: 28574 QC Preparation: 2006-12-15 Prepared By: TS **MDL** Parameter Units RL Flag Result < 0.00127 0.005 Total Copper mg/L Method Blank (1) QC Batch: 33098 Analyzed By: QC Batch: 33098 Date Analyzed: 2006-12-26 RR Prep Batch: 28574 QC Preparation: 2006-12-15 Prepared By: TS **MDL** Parameter Flag Result Units RLTotal Phosphorous < 0.0229 mg/L 0.05 Method Blank (1) QC Batch: 33098 QC Batch: 33098 Date Analyzed: 2006-12-26 Analyzed By: RR Prep Batch: 28574 QC Preparation: 2006-12-15 Prepared By: TS **MDL** Parameter Flag Result Units RL < 0.00310 0.005 Total Lead mg/L QC Batch: 33098 Method Blank (1) Analyzed By: QC Batch: Date Analyzed: RR 33098 2006-12-26 Prep Batch: 28574 QC Preparation: 2006-12-15 Prepared By: TS

MDL

Result

< 0.00556

Flag

Units

mg/L

RL

0.01

Fluoride

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0.2

mg/L

HELSTF Groundwater Samples

Method Blank (1) QC Batch: 33098 OC Batch: 33098 Date Analyzed: 2006-12-26 Analyzed By: RR Prep Batch: 28574 QC Preparation: 2006-12-15 Prepared By: TS MDL Parameter Flag Result Units RL Total Zinc < 0.000666 0.005 mg/L Method Blank (1) QC Batch: 33125 QC Batch: 33125 Date Analyzed: 2006-12-27 Analyzed By: RR Prep Batch: 28574 QC Preparation: Prepared By: 2006-12-15 TS **MDL** Parameter Flag Result Units RL Total Sodium < 0.0309 mg/L 0.5 Method Blank (1) QC Batch: 33182 QC Batch: 33182 Date Analyzed: 2006-12-27 Analyzed By: WB Prep Batch: 28842 QC Preparation: 2006-12-27 Prepared By: WB MDL Parameter Flag Result Units RL Bromide < 0.0429 mg/L 0.2 Method Blank (1) QC Batch: 33182 QC Batch: 33182 Date Analyzed: 2006-12-27 Analyzed By: WB Prep Batch: 28842 QC Preparation: 2006-12-27 Prepared By: WB **MDL** Parameter Result Flag Units RLNitrite-N < 0.0128 mg/L 0.2 Method Blank (1) QC Batch: 33182 QC Batch: 33182 Date Analyzed: 2006-12-27 Analyzed By: WB Prep Batch: Prepared By: 28842 QC Preparation: 2006-12-27 WB **MDL** Parameter Flag Result Units RL

< 0.0119

Total Mercury

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Method Blank (1) QC Batch: 33482 2007-01-05 OC Batch: Date Analyzed: Analyzed By: 33482 JS Prep Batch: 29087 QC Preparation: 2007-01-05 Prepared By: JS MDL Parameter Flag Result Units RL Nitrate and Nitrite as N < 0.0223 mg/L 0.1 Duplicates (1) QC Batch: 32903 Date Analyzed: 2006-12-12 Analyzed By: JG Prep Batch: 28611 QC Preparation: 2006-12-12 Prepared By: JG Duplicate Sample RPD Param Result Result Units Dilution **RPD** Limit 7.47 7.48 0 20 pΗ s.u. Duplicates (1) QC Batch: 32909 Date Analyzed: 2006-12-13 Analyzed By: DR Prep Batch: 28617 QC Preparation: 2006-12-13 Prepared By: DR RPD Duplicate Sample Result Result Units Param Dilution RPD Limit Specific Conductance 15800 15800 μMHOS/cm ĺ 0 6.7 Duplicates (1) OC Batch: 33073 Date Analyzed: 2006-12-22 Analyzed By: JG Prep Batch: 28749 QC Preparation: 2006-12-14 Prepared By: JG Duplicate Sample **RPD** Param Result Result Units Dilution RPD Limit Total Dissolved Solids 14400 14500 20 mg/L Laboratory Control Spike (LCS-1) OC Batch: 32862 Date Analyzed: 2006-12-15 Analyzed By: TS 28579 Prep Batch: QC Preparation: 2006-12-15 Prepared By: TS LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit

0.00100

< 0.0000217

95

89.4 - 108

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

mg/L

0.000950

7

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	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Mercury	0.000960	mg/L	1	0.00100	< 0.0000217	96	89.4 - 108	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 32895 Prep Batch: 28606 Date Analyzed: 2006-12-16 QC Preparation: 2006-12-16 Analyzed By: JG Prepared By: JG

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
1,1-Dichloroethene	50.0	μg/L	1	50.0	< 0.0736	100	83.4 - 114
Benzene	52,4	μ g/L	1	50.0	< 0.0495	105	83.5 - 115
Trichloroethene (TCE)	51.4	$\mu \mathrm{g}/\mathrm{L}$	1	50.0	< 0.0495	103	91.3 - 111
Toluene	48.3	μ g/L	i	50.0	< 0.0736	97	82 - 110
Chlorobenzene	50.5	μg/L	1	50.0	< 0.0217	101	87.9 - 109

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
1,1-Dichloroethene	49.6	μg/L	1	50.0	< 0.0736	99	83.4 - 114	l	20
Benzene	52.8	μ g/L	1	50.0	< 0.0495	106	83.5 - 115	1	20
Trichloroethene (TCE)	52.9	μ g/L	1	50.0	< 0.0495	106	91.3 - 111	3	20
Toluene	48.6	$\mu \mathrm{g/L}$	1	50.0	< 0.0736	97	82 - 110	1	20
Chlorobenzene	51.5	μ g/L	1	50.0	< 0.0217	103	87.9 - 109	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Dibromofluoromethane	51.6	50.7	μg/L	l	50.0	103	101	82.4 - 115
Toluene-d8	50.6	50.7	$\mu \mathrm{g}/\mathrm{L}$	1	50.0	101	101	89.7 - 108
4-Bromofluorobenzene (4-BFB)	48.9	48.7	μg/L	1	50.0	98	97	84.6 - 114

Laboratory Control Spike (LCS-1)

QC Batch: 32994 Prep Batch: 28613

Date Analyzed:

2006-12-20

Analyzed By: RR Prepared By: TS

QC Preparation: 2006-12-18

LCS Spike Matrix Rec. Limit Result Rec. Result Units Dil. Amount Param Dissolved Silver < 0.000199 102 86.2 - 116 0.127 mg/L 0.125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Silver	0.124	mg/L	1	0.125	< 0.000199	99	86.2 - 116	2	20

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Laboratory Control Spike (LCS-1)

OC Batch: 32994 Prep Batch: 28613

Date Analyzed: 2006-12-20 QC Preparation: 2006-12-18

Analyzed By: RR Prepared By: TS

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Dissolved Arsenic < 0.00360 93 78.7 - 116 0.464 mg/L 0.500

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Arsenic	0.467	mg/L	l	0.500	< 0.00360	93	78.7 - 116	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch: 32994 Prep Batch: 28613 Date Analyzed: 2006-12-20 QC Preparation: 2006-12-18 Analyzed By: RR Prepared By: TS

LCS Matrix Spike Rec. Param Result Units Dil. Amount Result Rec. Limit Dissolved Barium 0.957 1.00 < 0.000450 96 85 - 114 mg/L 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Barium	0.942	mg/L	1	1.00	< 0.000450	94	85 - 114	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 32994 Prep Batch: 28613 Date Analyzed: 2006-12-20 QC Preparation: 2006-12-18 Analyzed By: RRPrepared By: TS

LCS Matrix Spike Rec. Param Result Units Dil. Amount Result Rec. Limit Dissolved Cadmium 0.240 0.250 < 0.000577 96 83.3 - 113 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

LCSD Spike Matrix Rec. RPD Param Result Amount Result Limit Units Dil. Rec. RPD Limit Dissolved Cadmium 0.236 mg/L 0.250 < 0.000577 94 83.3 - 113 20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch: 32994 Prep Batch: 28613

Date Analyzed: 2006-12-20 QC Preparation: 2006-12-18

Analyzed By: RR Prepared By: TS

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Matrix	Rec.

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Chromium	0.0980	mg/L	1	0.100	< 0.00357	98	83 - 112

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Chromium	0.0980	mg/L	1	0.100	< 0.00357	98	83 - 112	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 32994 Prep Batch: 28613 Date Analyzed: 2006-12-20 QC Preparation: 2006-12-18

Analyzed By: RR Prepared By: TS

LCS Matrix Spike Rec. Result Limit Param Result Units Dil. Amount Rec. 0.126 0.125 < 0.00127 101 84.3 - 114 Dissolved Copper mg/L 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Copper	0.123	mg/L	1	0.125	< 0.00127	98	84.3 - 114	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 32994 Prep Batch: 28613

2006-12-20 Date Analyzed: QC Preparation: 2006-12-18

Analyzed By: RR Prepared By: TS

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit < 0.00398 101 0.503 0.500 81.1 - 111 Dissolved Lead mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Lead	0.479	mg/L	1	0.500	< 0.00398	96	81.1 - 111	5	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

32994 QC Batch: Prep Batch: 28613

Date Analyzed: 2006-12-20 QC Preparation: 2006-12-18

Analyzed By: RR Prepared By: TS

LCS Matrix Spike Rec. Param Result Units Dil. Amount Result Rec. Limit 0.422 0.500 < 0.00556 84 69.6 - 111 Dissolved Selenium mg/L

Work Order: 6121324

HELSTF Groundwater Samples

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Selenium	0.423	mg/L	1	0.500	< 0.00556	85	69.6 - 111	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 32994 Prep Batch: 28613

2006-12-20 Date Analyzed: QC Preparation: 2006-12-18 Analyzed By: RR Prepared By: TS

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LCS Matrix Rec. Spike Result Limit Param Result Units Dil. Amount Rec. < 0.00300 0.225 0.250 90 84.7 - 113 Dissolved Zinc mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Zinc	0.223	mg/L	1	0.250	< 0.00300	89	84.7 - 113	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch: 33006 Prep Batch: 28666 Date Analyzed: 2006-12-15 QC Preparation: 2006-12-15 Analyzed By: WB

Prepared By: WB

Spike LCS Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit < 0.0106 107 90 - 110 Nitrate-N 2.67 mg/L 2.50

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Nitrate-N	2.72	mg/L	1	2.50	< 0.0106	109	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch: 33006 28666 Prep Batch:

Date Analyzed: 2006-12-15 QC Preparation: 2006-12-15

Analyzed By: WB Prepared By: WB

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit 12.5 90 - 110 Chloride 12.3 mg/L < 0.0181 98 Sulfate 12.5 < 0.0485 105 90 - 110 13.1 mg/L 1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Work Order: 6121324

HELSTF Groundwater Samples

control spikes continued . . .

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	13.1	mg/L	1	12.5	< 0.0181	105	90 - 110	6	20
Sulfate	13.4	mg/L	l	12.5	< 0.0485	107	90 - 110	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 33017 Prep Batch: 28703 Date Analyzed: 2006-12-21 QC Preparation: 2006-12-21

Analyzed By: SM Prepared By: SM

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LCS Spike Matrix Rec. Result Units Dil. Amount Result Rec. Limit Param Ammonia-N 4.42 mg/L 5.00 < 0.820 88 66 - 122

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Ammonia-N	4.31	mg/L	l	5.00	< 0.820	86	66 - 122	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 33035 Prep Batch: 28613 Date Analyzed: 2006-12-21 QC Preparation: 2006-12-18

Analyzed By: RR Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Sodium	47.0	mg/L	1	50.0	< 0.0309	94	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Sodium	48.4	mg/L	l	50.0	< 0.0309	97	85 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 33096 Prep Batch: 28772 Date Analyzed: 2006-12-20 QC Preparation: 2006-12-20

Analyzed By: JG Prepared By: JG

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit 49.6 1,1-Dichloroethene < 0.0736 99 83.4 - 114 $\mu g/L$ 50.0 1 51.2 1 50.0 < 0.0495 102 83.5 - 115 Benzene μg/L

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control spikes continued . . .

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Trichloroethene (TCE)	51.0	μg/L	1	50.0	< 0.0495	102	91.3 - 111
Toluene	46.7	$\mu { m g/L}$	1	50.0	< 0.0736	93	82 - 110
Chlorobenzene	49.2	$\mu { m g/L}$	1	50.0	< 0.0217	98	87.9 - 109

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
1,1-Dichloroethene	50.3	μg/L	1	50.0	< 0.0736	101	83.4 - 114	1	20
Benzene	51.2	μ g/L	1	50.0	< 0.0495	102	83.5 - 115	0	20
Trichloroethene (TCE)	51.4	μ g/L	1	50.0	< 0.0495	103	91.3 - 111	l	20
Toluene	47.0	μ g/L	1	50.0	< 0.0736	94	82 - 110	1	20
Chlorobenzene	49.5	μ g/L	1	50.0	< 0.0217	99	87.9 - 109	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Dibromofluoromethane	48.3	48.5	μg/L	1	50.0	97	97	82.4 - 115
Toluene-d8	47.4	47.8	μ g/L	l	50.0	95	96	89.7 - 108
4-Bromofluorobenzene (4-BFB)	47.6	47.5	μ g/L	1	50.0	95	95	84.6 - 114

Laboratory Control Spike (LCS-1)

QC Batch: 33098 Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15

Analyzed By: RR Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Silver	0.120	mg/L	1	0.125	< 0.000274	96	87.9 - 111

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Silver	0.119	mg/L	1	0.125	< 0.000274	95	87.9 - 111]	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 33098 Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15 Analyzed By: RR Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Arsenic	0.463	mg/L	j	0.500	< 0.00489	93	86.8 - 108

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

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control spikes continued ...

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Arsenic	0.459	mg/L	1	0.500	< 0.00489	92	86.8 - 108	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch: 33098 Date Analyzed: 2006-12-26 Analyzed By: RR Prepared By: TS

Prep Batch: 28574

2006-12-15 QC Preparation:

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Barium	0.994	mg/L	l	1.00	< 0.000450	99	88.8 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Barium	0.992	mg/L	l	1.00	< 0.000450	99	88.8 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch:

Date Analyzed:

2006-12-26

Analyzed By: RR Prepared By: TS

Prep Batch: 28574

QC Preparation: 2006-12-15

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Cadmium	0.238	mg/L	l	0.250	<0.000268	95	86.8 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Cadmium	0.238	mg/L	1	0.250	< 0.000268	95	86.8 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

33098 QC Batch: Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15 Analyzed By: RR Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Chromium	0.103	mg/L	ĺ	0.100	< 0.00357	103	86.5 - 115

Work Order: 6121324

HELSTF Groundwater Samples

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Chromium	0.102	mg/L	1	0.100	< 0.00357	102	86.5 - 115	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 33098 Prep Batch: 28574

Date Analyzed:

2006-12-26

Analyzed By: RR

QC Preparation: 2006-12-15

Prepared By:

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	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Copper	0.126	mg/L	1	0.125	< 0.00127	101	83.4 - 117

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Copper	0.125	mg/L	1	0.125	< 0.00127	100	83.4 - 117	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch:

33098

Date Analyzed:

2006-12-26

Analyzed By: RR

Prep Batch: 28574

QC Preparation: 2006-12-15

Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Phosphorous	0.498	mg/L	1	0.500	< 0.0229	100	87.3 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Phosphorous	0.464	mg/L	1	0.500	< 0.0229	93	87.3 - 114	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch:

33098

Date Analyzed:

2006-12-26

Analyzed By: RR

Prep Batch: 28574

QC Preparation: 2006-12-15

Prepared By:

TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Lead	0.499	mg/L	1	0.500	< 0.00310	100	83 - 109

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Lead	0.514	mg/L]	0.500	< 0.00310	103	83 - 109	3	20

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Laboratory Control Spike (LCS-1)

OC Batch: Prep Batch: 28574

33098

Date Analyzed:

2006-12-26

QC Preparation: 2006-12-15 Analyzed By: RR

Prepared By: TS

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Selenium	0.421	mg/L	1	0.500	< 0.00556	84	75 - 112

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Selenium	0.430	mg/L	1	0.500	< 0.00556	86	75 - 112	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch:

33098

Date Analyzed:

2006-12-26

Analyzed By:

RR Prepared By: TS

Prep Batch: 28574

QC Preparation: 2006-12-15

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Zinc	0.231	mg/L	1	0.250	< 0.000666	92	82.9 - 109

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Zinc	0.227	mg/L	1	0.250	< 0.000666	91	82.9 - 109	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch:

33125

Date Analyzed:

2006-12-27

Analyzed By: RR

TS

Prep Batch: 28574

QC Preparation:

2006-12-15

Prepared By:

LCS Spike Matrix Rec. Param Dil. Limit Result Units Amount Result Rec. Total Sodium < 0.0309 113 87.1 - 120 56.6 mg/L50.0

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Sodium	57.1	mg/L	1	50.0	< 0.0309	114	87.1 - 120	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch:

33182

Date Analyzed:

2006-12-27

Analyzed By: WB

Prep Batch: 28842

QC Preparation:

2006-12-27

Prepared By:

WB

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LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Bromide mg/L < 0.0429 2.56 2.50 102 90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Bromide	2.56	mg/L	1	2.50	< 0.0429	102	90 - 110	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

OC Batch: 33182 Prep Batch: 28842 Date Analyzed: QC Preparation: 2006-12-27

2006-12-27

Analyzed By: WB

Prepared By:

WB

WB

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Nitrite-N	2.46	mg/L	1	2.50	< 0.0128	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Nitrite-N	2.54	mg/L	1	2.50	< 0.0128	102	90 - 110	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 33182 Prep Batch: 28842 Date Analyzed: 2006-12-27 QC Preparation: 2006-12-27

Analyzed By:

Prepared By: WB

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Fluoride	2.45	mg/L	1	2.50	< 0.0119	98	90 - 110

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Fluoride	2.52	mg/L	1	2.50	< 0.0119	101	90 - 110	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 33482 Prep Batch: 29087

Date Analyzed: 2007-01-05 QC Preparation: 2007-01-05

Analyzed By: JS Prepared By: JS

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit Nitrate and Nitrite as N 0.148 0.160 < 0.0223 92 82.2 - 115 mg/L

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	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Nitrate and Nitrite as N	0.161	mg/L	1	0.160	< 0.0223	101	82.2 - 115	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111036

QC Batch: 32862 Prep Batch: 28579 Date Analyzed: 2006-12-15 QC Preparation: 2006-12-15 Analyzed By: TS

Prepared By:

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Mercury	0.000960	mg/L	1	0.00100	5e-05	91	49.1 - 137

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Mercury	0.000660	mg/L	1	0.00100	5e-05	61	49.1 - 137	37	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111685

QC Batch: 32895 Date Analyzed: 2006-12-16 Analyzed By: JG

Prep Batch: 28606

QC Preparation: 2006-12-16

Prepared By: JG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
1,1-Dichloroethene	50.3	μg/L	1	50.0	< 0.0736	101	78.7 - 119
Benzene	51.5	$\mu { m g/L}$	1	50.0	< 0.0495	103	75.8 - 125
Trichloroethene (TCE)	49.8	μ g/L	1	50.0	< 0.0495	100	83.6 - 112
Toluene	46.2	μg/L	1	50.0	< 0.0736	92	81.6 - 115
Chlorobenzene	48.4	μg/L	1	50.0	< 0.0217	97	83.9 - 113

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
1,1-Dichloroethene	50.9	μg/L	1	50.0	< 0.0736	102	78.7 - 119	1	20
Benzene	52.6	μ g/L	1	50.0	< 0.0495	105	75.8 - 125	2	20
Trichloroethene (TCE)	51.1	$\mu { m g/L}$	1	50.0	< 0.0495	102	83.6 - 112	3	20
Toluene	47.0	μ g/L	1	50.0	< 0.0736	94	81.6 - 115	2	20
Chlorobenzene	50.3	μ g/L	1	50.0	< 0.0217	101	83.9 - 113	4	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Dibromofluoromethane	52.5	50.2	μg/L	1	50	105	100	86.6 - 114
Toluene-d8	49.9	49.0	$\mu \mathrm{g/L}$	1	50	100	98	91 - 109
4-Bromofluorobenzene (4-BFB)	46.4	45.4	μ g/L	1	50	93	91	87.2 - 113

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Matrix Spike (MS-1)

Spiked Sample: 111614

OC Batch:

32994

Prep Batch: 28613

Date Analyzed:

2006-12-20

QC Preparation: 2006-12-18 Analyzed By: RR

Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Silver	0.115	mg/L	1	0.125	< 0.000199	92	90.1 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Silver	0.116	mg/L	1	0.125	< 0.000199	93	90.1 - 120	l	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 111614

32994 QC Batch:

Date Analyzed:

2006-12-20

Analyzed By: RR

TS

Prep Batch:

28613

QC Preparation:

2006-12-18

Prepared By:

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Arsenic	0.470	mg/L	1	0.500	< 0.00360	94	75 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Arsenic	0.439	mg/L	1	0.500	< 0.00360	88	75 - 114	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 111614

OC Batch: Prep Batch:

32994 28613

Date Analyzed: QC Preparation:

2006-12-20 2006-12-18 Analyzed By: RR

Prepared By: TS

MS Spike Matrix Rec. Amount Result Limit Result Units Dil. Rec. Param 1.00 0.01 80 75 - 125 Dissolved Barium 0.810 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Barium	0.820	mg/L	1	1.00	0.01	81	75 - 125	l	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

32994

Spiked Sample: 111614

Date Analyzed:

2006-12-20

Analyzed By: Prepared By:

RR TS

Prep Batch: 28613

OC Batch:

QC Preparation:

2006-12-18

Work Order: 6121324 **HELSTF** Groundwater Samples

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Cadmium	0.195	mg/L	1	0.250	< 0.000577	78	75 - 112

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Cadmium	0.192	mg/L	1	0.250	< 0.000577	77	75 - 112	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

32994 QC Batch: Prep Batch: 28613

Date Analyzed: QC Preparation:

2006-12-20 2006-12-18 Analyzed By: RR

Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Chromium	0.0820	mg/L	1	0.100	< 0.00357	82	75 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Chromium	0.0870	mg/L	1	0.100	< 0.00357	87	75 - 121	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-I) Spiked Sample: 111614

QC Batch: 32994 Prep Batch: 28613 Date Analyzed: 2006-12-20 Analyzed By: RR Prepared By: TS

QC Preparation: 2006-12-18

MS Spike Matrix Rec. Amount Result Rec. Limit Result Units Dil. Param 0.003 92 81.5 - 125 0.125 Dissolved Copper 0.118 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Copper	0.117	mg/L	1	0.125	0.003	91	81.5 - 125	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Spiked Sample: 111614 Matrix Spike (MS-1)

QC Batch: 32994 Prep Batch: 28613 Date Analyzed: QC Preparation:

2006-12-20 2006-12-18 Analyzed By: RR

Prepared By:

TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Lead	0.495	mg/L	}	0.500	< 0.00398	99	75 - 111

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	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Lead	0.486	mg/L	1	0.500	< 0.00398	97	75 - 111	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: 32994 Prep Batch: 28613 Date Analyzed: 2006-12-20 QC Preparation: 2006-12-18 Analyzed By: RR Prepared By:

MS Spike Matrix Rec. Param Result Units Dil. Amount Result Limit Rec. Dissolved Selenium 0.440 0.500 < 0.00556 mg/L 88 75 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Selenium	0.458	mg/L	1	0.500	< 0.00556	92	75 - 118	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: 32994 Date Analyzed: 2006-12-20 Analyzed By:

Prep Batch: 28613

QC Preparation: 2006-12-18

Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Dissolved Zinc	0.236	mg/L	1	0.250	< 0.00300	94	80.4 - 120

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Zinc	0.227	mg/L	1	0.250	< 0.00300	91	80.4 - 120	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111623

QC Batch: 33006 Date Analyzed:

2006-12-15

Analyzed By: WB

Prep Batch: 28666

QC Preparation:

2006-12-15

Prepared By: WB

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Nitrate-N	13700	mg/L	500	12500	110	109	85.7 - 123

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Nitrate-N	13900	mg/L	500	12500	110	110	85.7 - 123	1	20

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Matrix Spike (MS-1) Spiked Sample: 111623

QC Batch:

33006

Date Analyzed:

2006-12-15

2006-12-15

Analyzed By:

WB

Prep Batch: 28666

QC Preparation:

Prepared By:

WB

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	68600	mg/L	5000	62500	4650	102	10 - 6384
Sulfate	72400	mg/L	5000	62500	9630	100	86.2 - 117

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	69300	mg/L	5000	62500	4650	103	10 - 6384	1	20
Sulfate	74100	mg/L	5000	62500	9630	103	86.2 - 117	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 111619

QC Batch:

33017

Date Analyzed:

2006-12-21

Analyzed By: Prepared By:

SM SM

Prep Batch: 28703

QC Preparation: 2006-12-21

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Ammonia-N	3.98	mg/L	1	5.00	< 0.820	80	58 - 134

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Ammonia-N	3.53	mg/L	1	5.00	< 0.820	71	58 - 134	12	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch:

33035

Date Analyzed:

2006-12-21

Analyzed By:

RR TS

Prep Batch: 28613

QC Preparation: 2006-12-18

Prepared By:

MS Spike Matrix Rec. Param Result Dil. Amount Result Units Rec. Limit Dissolved Sodium 2040 mg/L 50.0 2000 75 - 125

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Dissolved Sodium	2040	mg/L	1	50.0	2000	80	75 - 125	0	20

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Matrix Spike (MS-1)

Spiked Sample: 111624

OC Batch: Prep Batch: 28772

33096

Date Analyzed: QC Preparation:

2006-12-20 2006-12-20 Analyzed By: JG

Prepared By: JG

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
1,1-Dichloroethene	48.5	μg/L	1	50.0	< 0.0736	97	78.7 - 119
Benzene	49.7	μ g/L	1	50.0	< 0.0495	99	75.8 - 125
Trichloroethene (TCE)	49.8	μ g/L	1	50.0	< 0.0495	100	83.6 - 112
Toluene	45.8	$\mu { m g/L}$	1	50.0	< 0.0736	92	81.6 - 115
Chlorobenzene	47.7	μ g/L	1	50.0	< 0.0217	95	83.9 - 113

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
1,1-Dichloroethene		n/a	$\mu \mathrm{g/L}$	1	50.0	< 0.0736	0	78.7 - 119	200	20
Benzene	2	n/a	μ g/L	1	50.0	< 0.0495	0	75.8 - 125	200	20
Trichloroethene (TCE)	3	n/a	μ g/L	1	50.0	< 0.0495	0	83.6 - 112	200	20
Toluene	4	n/a	μ g/L	1	50.0	< 0.0736	0	81.6 - 115	200	20
Chlorobenzene	5	n/a	μ g/L	l	50.0	< 0.0217	0	83.9 - 113	200	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Dibromofluoromethane	6	48.7	n/a	μ g/L	l	50	97	0	86.6 - 114
Toluene-d8	7	48.1	n/a	$\mu { m g/L}$	1	50	96	0	91 - 109
4-Bromofluorobenzene (4-BFB)	8	48.4	n/a	μ g/L	1	50	97	0	87.2 - 113

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: 33098 Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15 Analyzed By: RR Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Silver	0.119	mg/L	ĺ	0.125	< 0.000274	95	88.2 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Silver	0.116	mg/L	1	0.125	< 0.000274	93	88.2 - 114	3	20

RPD is out of range because a matrix spike duplicate was not prepared.

²RPD is out of range because a matrix spike duplicate was not prepared.

³RPD is out of range because a matrix spike duplicate was not prepared.

⁴RPD is out of range because a matrix spike duplicate was not prepared.

⁵RPD is out of range because a matrix spike duplicate was not prepared.

⁶RPD is out of range because a matrix spike duplicate was not prepared.

⁷RPD is out of range because a matrix spike duplicate was not prepared.

⁸RPD is out of range because a matrix spike duplicate was not prepared.

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Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch:

33098

Prep Batch: 28574

Date Analyzed:

2006-12-26

QC Preparation: 2006-12-15 Analyzed By: RR

Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Arsenic	0.478	mg/L	1	0.500	< 0.00489	96	75.9 - 116

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Arsenic	0.498	mg/L	1	0.500	< 0.00489	100	75.9 - 116	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 111614

QC Batch:

33098

Date Analyzed:

2006-12-26

Analyzed By: RR

Prep Batch: 28574

QC Preparation:

2006-12-15

Prepared By:

TS

RR

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Barium	0.827	mg/L	1	1.00	0.01	82	64.9 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Barium	0.858	mg/L	i	1.00	0.01	85	64.9 - 129	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 111614

OC Batch:

33098

Date Analyzed:

2006-12-26

Analyzed By:

Prep Batch: 28574

QC Preparation: 2006-12-15

Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Cadmium	0.197	mg/L	1	0.250	< 0.000268	79	66.5 - 121

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Cadmium	0.211	mg/L	l	0.250	< 0.000268	84	66.5 - 121	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

OC Batch:

33098

Date Analyzed:

2006-12-26

Prepared By:

Analyzed By: RR TS

Prep Batch: 28574

QC Preparation:

2006-12-15

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Work Order: 6121324 **HELSTF** Groundwater Samples Page Number: 40 of 56

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Chromium	0.0860	mg/L	1	0.100	< 0.00357	86	69.2 - 129

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Chromium	0.0910	mg/L	1	0.100	< 0.00357	91	69.2 - 129	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: 33098 Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15

Analyzed By: RR Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Copper	0.118	mg/L	1	0.125	< 0.00127	94	83.8 - 118

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Copper	0.120	mg/L	1	0.125	< 0.00127	96	83.8 - 118	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: 33098 Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15

Analyzed By: RR Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Phosphorous	0.469	mg/L	1	0.500	0.028	88	70.1 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Phosphorous	0.484	mg/L	ļ	0.500	0.028	91	70.1 - 115	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15 Analyzed By: RR Prepared By: TS

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Total Lead	0.461	mg/L	l	0.500	< 0.00310	92	71.9 - 115

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Work Order: 6121324 HELSTF Groundwater Samples Page Number: 41 of 56

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Lead	0.489	mg/L	Ī	0.500	< 0.00310	98	71.9 - 115	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: 33098 Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15 Analyzed By: RR Prepared By: TS

MS Matrix Spike Rec. Limit Param Result Units Dil. Amount Result Rec. 0.500 < 0.00556 100 66.8 - 116 Total Selenium 0.501 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Selenium	0.530	mg/L	1	0.500	< 0.00556	106	66.8 - 116	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: 33098 Prep Batch: 28574 Date Analyzed: 2006-12-26 QC Preparation: 2006-12-15 Analyzed By: RR Prepared By: TS

MS Spike Matrix Rec. Result Limit Amount Rec. Param Result Units Dil. 0.228 0.250 < 0.000666 91 75.5 - 113 Total Zinc mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Zinc	0.225	mg/L	1	0.250	< 0.000666	90	75.5 - 113	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111614

QC Batch: 33125 Prep Batch: 28574 Date Analyzed: 2006-12-27 QC Preparation: 2006-12-15

Analyzed By: RR Prepared By: TS

Rec. MS Spike Matrix Limit Param Result Units Dil. Amount Result Rec. 50.0 2100 100 75 - 125 Total Sodium 2150 mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Total Sodium	2150	mg/L	1	50.0	2100	100	75 - 125	0	20

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Matrix Spike (MS-1) Spiked Sample: 112625

QC Batch:

33182 Prep Batch: 28842 Date Analyzed: QC Preparation: 2006-12-27

2006-12-27

Analyzed By: WB

Prepared By:

WB

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Bromide	130	mg/L	50	125	<2.14	104	95.4 - 114

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Bromide	129	mg/L	50	125	<2.14	103	95.4 - 114	ì	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 112625

QC Batch: 33182 Date Analyzed:

2006-12-27

WB Analyzed By:

Prep Batch: 28842

QC Preparation:

2006-12-27

Prepared By: WB

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Nitrite-N	137	mg/L	50	125	< 0.640	110	58.3 - 151

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Nitrite-N	129	mg/L	50	125	< 0.640	103	58.3 - 151	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1)

Spiked Sample: 112625

QC Batch:

33182

Date Analyzed:

2006-12-27

Analyzed By:

WB

Prep Batch: 28842

QC Preparation: 2006-12-27

WB Prepared By:

	MS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Fluoride	121	mg/L	50	125	8	90	73.4 - 119

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Fluoride	126	mg/L	50	125	8	94	73.4 - 119	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 111621

QC Batch: 33482 Date Analyzed: 2007-01-05

Analyzed By: JS

Prep Batch: 29087

QC Preparation:

2007-01-05

Prepared By:

MS Spike Matrix Rec. Limit Param Result Units Dil. Amount Result Rec. 44.6 200 32.0 46.8 -5 25.4 - 158 Nitrate and Nitrite as N mg/L

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

		MSD			Spike	Matrix		Rec.		RPD
Param		Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Nitrate and Nitrite as N	10	42.8	mg/L	200	32.0	46.8	-12	25.4 - 158	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Standard (CCV-1)

QC Batch: 32862

Date Analyzed: 2006-12-15

Analyzed By: TS

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			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Mercury		mg/L	0.00100	0.00101	101	80 - 120	2006-12-15

Standard (CCV-2)

QC Batch: 32862

Date Analyzed: 2006-12-15

Analyzed By: TS

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Mercury		mg/L	0.00100	0.00102	102	80 - 120	2006-12-15

Standard (CCV-1)

QC Batch: 32895

Date Analyzed: 2006-12-16

Analyzed By: JG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	54.8	110	80 - 120	2006-12-16
1,1-Dichloroethene		μ g/L	50.0	50.7	101	80 - 120	2006-12-16
Chloroform		μg/L	50.0	49.4	99	80 - 120	2006-12-16
1,2-Dichloropropane		$\mu \mathrm{g/L}$	50.0	51.3	103	80 - 120	2006-12-16
Toluene		μg/L	50.0	47.9	96	80 - 120	2006-12-16
Chlorobenzene		μg/L	50.0	51.9	104	80 - 120	2006-12-16
Ethylbenzene		$\mu { m g/L}$	50.0	53.9	108	80 - 120	2006-12-16

Standard (CCV-2)

QC Batch: 32895

Date Analyzed: 2006-12-16

Analyzed By: JG

⁹Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

¹⁰Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.

Work Order: 6121324 Page Number: 44 of 56 HELSTF Groundwater Samples

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	57.1	114	80 - 120	2006-12-16
1,1-Dichloroethene		μg/L	50.0	51.1	102	80 - 120	2006-12-16
Chloroform		μg/L	50.0	50.8	102	80 - 120	2006-12-16
1,2-Dichloropropane		μg/L	50.0	51.8	104	80 - 120	2006-12-16
Toluene		μg/L	50.0	48.8	98	80 - 120	2006-12-16
Chlorobenzene		$\mu { m g/L}$	50.0	51.8	104	80 - 120	2006-12-16
Ethylbenzene		μ g/L	50.0	53.8	108	80 - 120	2006-12-16

Standard (ICV-1)

QC Batch: 32903

Date Analyzed: 2006-12-12

Analyzed By: JG

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pН		s.u.	7.00	6.94	99	98.8 - 101	2006-12-12

Standard (CCV-1)

QC Batch: 32903

Date Analyzed: 2006-12-12

Analyzed By: JG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
pН		s.u.	7.00	6.97	100	98.8 - 101	2006-12-12

Standard (ICV-1)

QC Batch: 32909

Date Analyzed: 2006-12-13

Analyzed By: DR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Specific Conductance		μMHOS/cm	1410	1410	100	96.7 - 108	2006-12-13

Standard (CCV-1)

QC Batch: 32909

Date Analyzed: 2006-12-13

Analyzed By: DR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Specific Conductance		μMHOS/cm	1410	1420	100	96.7 - 108	2006-12-13

Standard (ICV-1)

QC Batch: 32918

Date Analyzed: 2006-12-15

Analyzed By: JG

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Report Date:	January	9,	ΖU
7			

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Hydroxide Alkalinity	-	mg/L as CaCo3	0.00	<1.00		0 - 105	2006-12-15
Carbonate Alkalinity		mg/L as CaCo3	0.00	240		0 - 105	2006-12-15
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	10.0		0 - 105	2006-12-15
Total Alkalinity		mg/L as CaCo3	250	250	100	93.7 - 99.9	2006-12-15

Standard (CCV-1)

QC Batch: 32918

Date Analyzed: 2006-12-15

Analyzed By: JG

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Hydroxide Alkalinity		mg/L as CaCo3	0.00	<1.00		0 - 105	2006-12-15
Carbonate Alkalinity		mg/L as CaCo3	0.00	228		0 - 105	2006-12-15
Bicarbonate Alkalinity		mg/L as CaCo3	0.00	20.0		0 - 105	2006-12-15
Total Alkalinity		mg/L as CaCo3	250	248	99	93.7 - 99.9	2006-12-15

Standard (ICV-1)

QC Batch: 32994

Date Analyzed: 2006-12-20

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Silver		mg/L	0.125	0.122	98	90 - 110	2006-12-20

Standard (ICV-1)

QC Batch: 32994

Date Analyzed: 2006-12-20

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	, Limits	Analyzed
Dissolved Arsenic		mg/L	1.00	0.974	97	90 - 110	2006-12-20

Standard (ICV-1)

QC Batch: 32994

Date Analyzed: 2006-12-20

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Barium		mg/L	1.00	0.986	99	90 - 110	2006-12-20

Standard (ICV-1)

QC Batch: 32994

Date Analyzed: 2006-12-20

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			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Cadmium	* ***5	mg/L	1,00	0.954	95	95 - 105	2006-12-20
Standard (ICV-1)							
QC Batch: 32994			Date Analyzed:	2006-12-20		Ana	lyzed By: RR
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Chromium		mg/L	1.00	0.954	95	90 - 110	2006-12-20
Standard (ICV-1)							
QC Batch: 32994			Date Analyzed:	2006-12-20		Ana	lyzed By: RR
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Copper	Tiug	mg/L	1.00	0.976	98	90 - 110	2006-12-20
QC Batch: 32994			Date Analyzed:	2006-12-20		Ana	lyzed By: RR
			ICVs	ICVs	lCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Lead	1 1116	mg/L	1.00	1.00	100	90 - 110	2006-12-20
Standard (ICV-1)							
QC Batch: 32994			Date Analyzed:	2006-12-20		Ana	lyzed By: RR
			ICVs	ICVs	ICVs	Percent	
_			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Selenium		mg/L	1.00	0.970	97	90 - 110	2006-12-20
Standard (ICV-1)							
QC Batch: 32994			Date Analyzed:	2006-12-20		Ana	ilyzed By: RR
			1CVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param Dissolved Zinc	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed

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Standard (CCV-1)							
QC Batch: 32994			Date Analyzed:	2006-12-20		Ana	lyzed By: RR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Silver		mg/L	0.125	0.121	97	90 - 110	2006-12-20
Standard (CCV-1)							
QC Batch: 32994			Date Analyzed:	2006-12-20		Ana	lyzed By: RR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Arsenic		mg/L	1.00	0.929	93	90 - 110	2006-12-20
Standard (CCV-1)							
QC Batch: 32994			Date Analyzed:	2006-12-20		Ana	lyzed By: RR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Barium		mg/L	1.00	0.959	96	90 - 110	2006-12-20

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Date Analyzed: 2006-12-20

Analyzed By: RR

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Cadmium		mg/L	1.00	0.928	93	90 - 110	2006-12-20

Standard (CCV-1)

QC Batch: 32994

Date Analyzed: 2006-12-20

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Chromium		mg/L	1.00	0.923	92	90 - 110	2006-12-20

Standard (CCV-1)

QC Batch: 32994

Date Analyzed: 2006-12-20

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Dissolved Copper		mg/L	1.00	0.952	95	90 - 110	2006-12-20
Standard (CCV-1)							
QC Batch: 32994			Date Analyz	ed: 2006-12-2	0	Ana	lyzed By: RR
			CCV-	COV	CCV-	D	
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Lead	1105	mg/L	1.00	0.966	97	90 - 110	2006-12-20
Standard (CCV-1)		· · · · · · · · · · · · · · · · · · ·					
QC Batch: 32994			Date Analyz	ed: 2006-12-2	0	Ana	lyzed By: RR
			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Selenium	<u>~</u>	mg/L	1.00	0.955	96	90 - 110	2006-12-20
Standard (CCV-1)	ATT STATEMENT AND THE STATEMEN						
Standard (CCV-1) QC Batch: 32994			Date Analyz	ed: 2006-12-2	:0	Ana	ilyzed By: RR
			CCVs	CCVs	CCVs	Percent	
QC Batch: 32994			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
QC Batch: 32994 Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
QC Batch: 32994	Flag	Units mg/L	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
QC Batch: 32994 Param	Flag		CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
QC Batch: 32994 Param Dissolved Zinc	Flag		CCVs True Conc.	CCVs Found Conc. 0.982	CCVs Percent Recovery 98	Percent Recovery Limits 90 - 110	Date Analyzed
QC Batch: 32994 Param Dissolved Zinc Standard (ICV-1)	Flag		CCVs True Conc. 1.00	CCVs Found Conc. 0.982	CCVs Percent Recovery 98	Percent Recovery Limits 90 - 110	Date Analyzed 2006-12-20
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006		mg/L	CCVs True Conc. 1.00 Date Analyza ICVs True	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found	CCVs Percent Recovery 98 5 ICVs Percent	Percent Recovery Limits 90 - 110 Ana Percent Recovery	Date Analyzed 2006-12-20 lyzed By: WB Date
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006	Flag Flag	mg/L Units	CCVs True Conc. 1.00 Date Analyze ICVs True Conc.	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found Conc.	CCVs Percent Recovery 98 ICVs Percent Recovery	Percent Recovery Limits 90 - 110 Ana Percent Recovery Limits	Date Analyzed 2006-12-20 lyzed By: WB Date Analyzed
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006		mg/L	CCVs True Conc. 1.00 Date Analyza ICVs True	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found	CCVs Percent Recovery 98 5 ICVs Percent	Percent Recovery Limits 90 - 110 Ana Percent Recovery	Date Analyzed 2006-12-20 lyzed By: WB Date
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006		mg/L Units	CCVs True Conc. 1.00 Date Analyze ICVs True Conc.	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found Conc.	CCVs Percent Recovery 98 ICVs Percent Recovery	Percent Recovery Limits 90 - 110 Ana Percent Recovery Limits	Date Analyzed 2006-12-20 lyzed By: WB Date Analyzed
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006 Param Nitrate-N		mg/L Units	CCVs True Conc. 1.00 Date Analyze ICVs True Conc. 2.50	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found Conc.	CCVs Percent Recovery 98 1CVs Percent Recovery 103	Percent Recovery Limits 90 - 110 Ana Percent Recovery Limits 90 - 110	Date Analyzed 2006-12-20 lyzed By: WB Date Analyzed
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006 Param Nitrate-N Standard (ICV-1)		mg/L Units	CCVs True Conc. 1.00 Date Analyze ICVs True Conc. 2.50	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found Conc. 2.58	CCVs Percent Recovery 98 1CVs Percent Recovery 103	Percent Recovery Limits 90 - 110 Ana Percent Recovery Limits 90 - 110	Date Analyzed 2006-12-20 lyzed By: WB Date Analyzed 2006-12-15
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006 Param Nitrate-N Standard (ICV-1)		mg/L Units	CCVs True Conc. 1,00 Date Analyze ICVs True Conc. 2,50	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found Conc. 2.58	CCVs Percent Recovery 98 5 ICVs Percent Recovery 103	Percent Recovery Limits 90 - 110 Ana Percent Recovery Limits 90 - 110	Date Analyzed 2006-12-20 lyzed By: WB Date Analyzed 2006-12-15
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006 Param Nitrate-N Standard (ICV-1) QC Batch: 33006	₹ i ag	mg/L Units mg/L Units	CCVs True Conc. 1.00 Date Analyze ICVs True Conc. 2.50 Date Analyze ICVs True Conc.	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found Conc. 2.58 ed: 2006-12-1 ICVs Found Conc.	CCVs Percent Recovery 98 1CVs Percent Recovery 103 1CVs Percent Recovery	Percent Recovery Limits 90 - 110 Ana Percent Recovery Limits 90 - 110 Ana Percent Recovery Limits	Date Analyzed 2006-12-20 lyzed By: WB Date Analyzed 2006-12-15 lyzed By: WB
Param Dissolved Zinc Standard (ICV-1) QC Batch: 33006 Param Nitrate-N Standard (ICV-1) QC Batch: 33006	lag	mg/L Units mg/L	CCVs True Conc. 1.00 Date Analyze ICVs True Conc. 2.50 Date Analyze ICVs True	CCVs Found Conc. 0.982 ed: 2006-12-1 ICVs Found Conc. 2.58 ed: 2006-12-1 ICVs Found	CCVs Percent Recovery 98 1CVs Percent Recovery 103 1CVs Percent	Percent Recovery Limits 90 - 110 Ana Percent Recovery Limits 90 - 110 Ana Percent Recovery	Date Analyzed 2006-12-20 lyzed By: WB Date Analyzed 2006-12-15 lyzed By: WB

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Standard (CCV-1)

QC Batch: 33006

Date Analyzed: 2006-12-15

Analyzed By: WB

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Nitrate-N		mg/L	2.50	2.72	109	90 - 110	2006-12-15

Standard (CCV-1)

QC Batch: 33006

Date Analyzed: 2006-12-15

Analyzed By: WB

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		mg/L	12.5	13.0	104	90 - 110	2006-12-15
Sulfate		mg/L	12.5	13.7	110	90 - 110	2006-12-15

Standard (ICV-1)

QC Batch: 33017

Date Analyzed: 2006-12-21

Analyzed By: SM

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Ammonia-N		mg/L	5.00	4.98	100	85 - 115	2006-12-21

Standard (CCV-1)

QC Batch: 33017

Date Analyzed: 2006-12-21

Analyzed By: SM

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Ammonia-N		mg/L	5.00	4.82	96	85 - 115	2006-12-21

Standard (ICV-1)

QC Batch: 33035

Date Analyzed: 2006-12-21

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Dissolved Sodium		mg/L	50.0	52.0	104	90 - 110	2006-12-21

Standard (CCV-1)

QC Batch: 33035

Date Analyzed: 2006-12-21

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Work Order: 6121324 **HELSTF** Groundwater Samples

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			CCVs	CCVs	CCVs	Percent
			True	Found	Percent	Recovery
Param	Flag	Units	Conc.	Conc.	Recovery	Limits

50.0

mg/L

Standard (ICV-1)

Dissolved Sodium

QC Batch: 33073

Date Analyzed: 2006-12-22

Analyzed By: JG

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90 - 110

Date

Analyzed

2006-12-21

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Dissolved Solids		mg/L	1000	1000	100	94.4 - 106	2006-12-22

Standard (CCV-1)

QC Batch: 33073

Date Analyzed: 2006-12-22

Analyzed By: JG

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Dissolved Solids		mg/L	1000	977	98	94.4 - 106	2006-12-22

Standard (CCV-1)

QC Batch: 33096

Date Analyzed: 2006-12-20

Analyzed By: JG

Param	Flag	Units	CCVs True Conc,	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Vinyl Chloride		μg/L	50.0	45.4	91	80 - 120	2006-12-20
1,1-Dichloroethene		μ g/L	50.0	47.3	95	80 - 120	2006-12-20
Chloroform		μg/L	50.0	46.2	92	80 - 120	2006-12-20
1,2-Dichloropropane		$\mu \mathrm{g}/\mathrm{L}$	50.0	47.1	94	80 - 120	2006-12-20
Toluene		μg/L	50.0	44.4	89	80 - 120	2006-12-20
Chlorobenzene		μ g/L	50.0	47.0	94	80 - 120	2006-12-20
Ethylbenzene		$\mu { m g/L}$	50.0	48.5	97	80 - 120	2006-12-20

Standard (ICV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Silver		mg/L	0.125	0.127	102	90 - 110	2006-12-26

Standard (ICV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Work Order: 6121324 **HELSTF** Groundwater Samples Page Number: 51 of 56

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Arsenic		mg/L	1.00	1.00	100	90 - 110	2006-12-26
Standard (ICV-1)							
QC Batch: 33098			Date Analyz	zed: 2006-12-	26	Ana	lyzed By: RR
			ICVs	ICVs	ICVs	Percent	D (
Param	Flag	Units	True Conc.	Found Conc.	Percent	Recovery Limits	Date Analyzed
Total Barium	riag	mg/L	1.00	1.01	Recovery 101	90 - 110	2006-12-26
			1.00	1.02	101	70 110	2000 12 20
Standard (ICV-1)					•		
QC Batch: 33098			Date Analyz	zed: 2006-12-	26	Ana	lyzed By: RR
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Cadmium		mg/L	1.00	0.971	97	90 - 110	2006-12-26
Standard (ICV-1)							
QC Batch: 33098			Date Analyz	zed: 2006-12-	26	Ana	dyzed By: RR
			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Chromium		mg/L	1.00	0.967	97	90 - 110	2006-12-26
Standard (ICV-I)							
QC Batch: 33098			Date Analy:	zed: 2006-12-	26	Ana	ilyzed By: RR
			lCVs	ICVs	ICVs	Percent	
Da	T21	1 Indian	True	Found	Percent	Recovery	Date
Param Total Copper	Flag	Units	Conc. 1.00	Conc. 1.00	Recovery 100	Limits 90 - 110	Analyzed 2006-12-26
Total Copper		mg/L	1.00	1.00	100	90 - 110	2000-12-20
Standard (ICV-1)							
QC Batch: 33098			Date Analy:	zed: 2006-12-	26	Ana	nlyzed By: RR
			ICVs	1CVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Phosphorous		mg/L	5.00	4.90	98	90 - 110	2006-12-26

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Standard (ICV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Analyzed By: RR

			ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Lead		mg/L	1.00	1.02	102	90 - 110	2006-12-26

Standard (ICV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Selenium		mg/L	1.00	0.983	98	90 - 110	2006-12-26

Standard (ICV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	_
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Zinc		mg/L	1.00	1.04	104	90 - 110	2006-12-26

Standard (CCV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Silver		mg/L	0.125	0.120	96	90 - 110	2006-12-26

Standard (CCV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Arsenic		mg/L	1.00	0.914	91	90 - 110	2006-12-26

Standard (CCV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Work Order: 6121324 HELSTF Groundwater Samples Page Number: 53 of 56

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Total Barium	<u> </u>	mg/L	1.00	0.952	95	90 - 110	2006-12-26
Standard (CCV-1)							
QC Batch: 33098			Date Analyz	zed: 2006-12-2	26	Ana	lyzed By: RR
Param Total Cadmium	Flag	Units mg/L	CCVs True Conc. 1.00	CCVs Found Conc. 0.917	CCVs Percent Recovery 92	Percent Recovery Limits 90 - 110	Date Analyzed 2006-12-26
Standard (CCV-1)							
QC Batch: 33098			Date Analyz	zed: 2006-12-2	26	Ana	lyzed By: RR
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param Total Chromium	Flag	Units mg/L	Conc. 1.00	Conc. 0.907	Recovery 91	Limits 90 - 110	Analyzed 2006-12-26
QC Batch: 33098			Date Analy: CCVs True	zed: 2006-12-: CCVs Found	CCVs Percent	Ana Percent Recovery	ilyzed By: RR Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Copper	<u>U</u>	mg/L	1.00	0.932	93	90 - 110	2006-12-26
Standard (CCV-1) QC Batch: 33098				zed: 2006-12-			alyzed By: RR
			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Phosphorous		mg/L	5.00	4.60	92	90 - 110	2006-12-26
Standard (CCV-1) QC Batch: 33098			Date Analy CCVs	CCVs	CCVs	Percent	nlyzed By: RR
70	Y*1	11	True	Found	Percent	Recovery	Date
Param Total Land	Flag	Units ma/I	Conc. 1.00	Conc. 0.959	Recovery 96	Limits 90 - 110	Analyzed 2006-12-26
Total Lead		mg/L	1.00	0.237	7U	70 - 110	2000-12-20

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Standard (CCV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Analyzed By: RR

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Selenium		mg/L	1.00	0.947	95	90 - 110	2006-12-26

Standard (CCV-1)

QC Batch: 33098

Date Analyzed: 2006-12-26

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Zinc		mg/L	1.00	0.971	97	90 - 110	2006-12-26

Standard (ICV-1)

QC Batch: 33125

Date Analyzed: 2006-12-27

Analyzed By: RR

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Sodium		mg/L	50.0	51.7	103	90 - 110	2006-12-27

Standard (CCV-1)

QC Batch: 33125

Date Analyzed: 2006-12-27

Analyzed By: RR

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Total Sodium		mg/L	50.0	48.6	97	90 - 110	2006-12-27

Standard (ICV-1)

QC Batch: 33182

Date Analyzed: 2006-12-27

Analyzed By: WB

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Bromide		mg/L	5.00	5.03	101	90 - 110	2006-12-27

Standard (ICV-1)

QC Batch: 33182

Date Analyzed: 2006-12-27

Analyzed By: WB

HELSTF Groundwater Samples

eport Date: January 9, 2007	Work Order: 6121324	Page Number: 55 of 56
	HELETE Crown drunton Complete	

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Nitrite-N		mg/L	1.13	1.23	109	90 - 110	2006-12-27

Standard (ICV-1)

QC Batch: 33182

Date Analyzed: 2006-12-27

Analyzed By: WB

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Fluoride		mg/L	5.00	4.88	98	90 - 110	2006-12-27

Standard (CCV-1)

QC Batch: 33182

Date Analyzed: 2006-12-27

Analyzed By: WB

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Bromide		mg/L	2.50	2.55	102	90 - 110	2006-12-27

Standard (CCV-1)

QC Batch: 33182

Date Analyzed: 2006-12-27

Analyzed By: WB

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Nitrite-N		mg/L	2.50	2.45	98	90 - 110	2006-12-27

Standard (CCV-1)

QC Batch: 33182

Date Analyzed: 2006-12-27

Analyzed By: WB

			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Fluoride		mg/L	2.50	2.60	104	90 - 110	2006-12-27

Standard (ICV-1)

QC Batch: 33482

Date Analyzed: 2007-01-05

Analyzed By: JS

			ICVs	ICVs	ICVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Nitrate and Nitrite as N		mg/L	0.160	0.176	110	85 - 115	2007-01-05

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Standard (CCV-1)

QC Batch: 33482

Date Analyzed: 2007-01-05

Analyzed By: JS

,			CCVs	CCVs	CCVs	Percent	
			True	Found	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Nitrate and Nitrite as N		mg/L	0.160	0.159	99	85 - 115	2007-01-05